Volume 9 **Contents for January** Number 1

Animal Viruses

Identification of Virus-Induced Proteins in Cells Productively Infected with Simian Virus 40. HANS FISCHER AND GERHARD SAUER 1
Structural Proteins and Subunits of Rubella Virus. ANTTI VAHERI AND TAPANI HOVI .. 10
Virus-Induced Interference in Heterologously Infected HeLa Cells. M. DOYLE AND J. J. HOLLAND 22
Early Interaction of Rhinoviruses with Host Cells. K. LONBERG-HOLM AND B. D. KORANT 29
Synthesis and Assembly of Simian Virus 40. I. Differential Synthesis of Intact Virions and Empty Shells. HARVEY L. OZER 41
Synthesis and Assembly of Simian Virus 40. II. Synthesis of the Major Capsid Protein and Its Incorporation into Viral Particles. HARVEY L. OZER AND PETER TEGTMEYER 52
Reovirus-Specific Ribonucleic Acid from Polysomes of Infected L Cells. R. WARD, A. K. BANERJEE, A. LAFIANDRA, AND A. J. SHATKIN 61
Binding of Deoxyribonucleic Acid-Dependent Deoxyribonucleic Acid Polymerase to Poxvirus. K. B. TAN AND B. R. MCAUSLAN 70
Inhibition of Protein Synthesis in L Cells Infected with Vesicular Stomatitis Virus. GAIL W. WERTZ AND JULIUS S. YOUNGNER 85
Immunoelectrophoretic Analysis of Avian Ribonucleic Acid Tumor Virus Group-Specific Antigens. R. A. BONAR, R. ISHIZAKI, AND J. W. BEARD 90
Genome of Sindbis Virus. B. M. ARIF AND P. FAULKNER 102
Immunological Relationships of Reverse Transcriptases from Ribonucleic Acid Tumor Viruses. WADE P. PARKS, EDWARD M. SCOLNICK, JEFFREY ROSS, GEORGE J. TODARO, AND STUART A. AARONSON 110
RNA-Dependent DNA Polymerase Activity of RNA Tumor Viruses. I. Directing Influence of DNA in the Reaction. JERARD HURWITZ AND JONATHAN P. LEIS 116
RNA-Dependent DNA Polymerase Activity of RNA Tumor Viruses. II. Directing Influence of RNA in the Reaction. JONATHAN P. LEIS AND JERARD HURWITZ 130
Proteins Specified by Herpes Simples Virus. V. Purification and Structural Proteins of the Herpesvirion. PATRICIA G. SPEAR AND BERNARD ROIZMAN 143
Reduction and Reoxidation of Australia Antigen: Loss and Reconstitution of Particle Structure and Antigenicity. NORIYOSHI SUKENO, RYOICHI SHIRACHI, JUNJI YAMAGUCHI, AND NAKAO ISHIDA 182
Selective Inhibition of the Synthesis of Sindbis Virion Proteins by an Inhibitor of Chymotrypsin. E. R. PFEFFERKORN AND MARY K. BOYLE 187

Bacterial Viruses

Effect of Nalidixic Acid on the Growth of Deoxyribonucleic Acid Bacteriophages. JUDITH P. BAIRD, GERARD J. BOURGUIGNON, AND ROLF STERNGLANZ 17
Polysomal Localization of R17 Bacteriophage-Specific Protein Synthesis. JUDITH L. TRUDEN AND RICHARD M. FRANKLIN 75
Mechanism of Adsorption and Eclipse of Bacteriophage ϕX174. I. In Vitro Conformational Change Under Conditions of Eclipse. NINO L. INCARDONA, RONALD BLONSKI, AND WILLIAM FEENEY 96
Isolation and Characterization of a Bacteriophage Tail-Like Bacteriocin from a Strain of *Rhizobium*. WOLFGANG LOTZ AND FRANK MAYER 160
Morphogenesis of Bacteriophage ϕ80: Identification of the Cistron 13 Product. SAMIR S. DEEB 174
Genetic Location of a Mutant of Bacteriophage T4 Deficient in the Ability to Induce Endonuclease II. PURNIMA RAY, NAVIN K. SINHA, HUBER R. WARNER, AND D. PETER SNUSTAD 184

Volume 9 Contents for February Number 2

Animal Viruses

Temperature-Sensitive Mutants Isolated from L Cells Persistently Infected with Newcastle Disease Virus. OLIVIA T. PREBLE AND JULIUS S. YOUNGNER 200
Protein Kinase Activity in Equine Herpesvirus. CHARLES C. RANDALL, HOWELL W. ROGERS, DONALD N. DOWNER, AND GLENN A. GENTRY 216
Cell-Dependent Differences in the Production of Infectious Herpes Simplex Virus at a Supraoptimal Temperature. NORMAN A. CROUCH AND FRED RAPP 223
Transfer Ribonucleic Acid Synthetase Activity Associated with Avian Myeloblastosis Virus. ELEANOR ERIKSON AND R. L. ERIKSON 231
Inhibition of Virus Growth by Ouabain: Effect of Ouabain on the Growth of HVJ in Chick Embryo Cells. YOSHIYUKI NAGAI, KOICHIRO MAENO, MASAO IINUMA, TETSUYA YOSHIDA, AND TOSHISADA MATSUMOTO 234
Detection and Assay of Avian Tumor Virus Group-Specific Antigen and Antibody by the Paired Radioiodine-Labeled Antibody Technique. J. WEBER AND D. S. YOHN .. 244
Mechanism of Antiviral Action of Acetone on Rabbitpox Virus Replication. V. I. CHERNOS, B. A. LIBSHITS, E. YAKOBSON, AND Y. Z. GHENDON 251
Inhibition of Early Vaccinia Virus Ribonucleic Acid Synthesis in Interferon-Treated Chicken Embryo Fibroblasts. H. S. BIALY AND C. COLBY 286
Origin of the Vaccinia Virus Hemagglutinin. KENNETH E. BLACKMAN AND H. CURT BUBEL 290
Intracellular Forms of Adenovirus Deoxyribonucleic Acid. I. Evidence for a Deoxyribonucleic Acid-Protein Complex in Baby Hamster Kidney Cells Infected with Adenovirus Type 12. WALTER DOERFLER, ULLA LUNDHOLM, AND MONICA HIRSCH-KAUFFMANN 297
Acquisition of Sequences Homologous to Host Deoxyribonucleic Acid by Closed Circular Simian Virus 40 Deoxyribonucleic Acid. SARA LAVI AND ERNEST WINOCOUR 309
Sequence Heterogeneity in Closed Simian Virus 40 Deoxyribonucleic Acid. HENRY T. TAI, CHARLES ALLEN SMITH, PHILLIP A. SHARP, AND JEROME VINOGRAD 317
Viruses of *Entamoeba histolytica*. I. Identification of Transmissible Virus-Like Agents. LOUIS S. DIAMOND, CARL F. T. MATTERN, AND I. LOUISE BARTGIS 326
Viruses of *Entamoeba histolytica*. II. Morphogenesis of the Polyhedral Particle ($ABRM_2 \rightarrow$ HK-9) $\rightarrow$ HK-301 and the Filamentous Agent $(ABRM)_2 \rightarrow$ HK-9. CARL F. T. MATTERN, LOUIS S. DIAMOND, AND WENDELL A. DANIEL 342
Chromatographic Separation and Antigenic Analysis of Proteins of the Oncornaviruses. II. Mammalian Leukemia-Sarcoma Viruses. ROBERT C. NOWINSKI, ERWIN FLEISSNER, NURUL H. SARKAR, AND TADAO AOKI 359
Relationship Between Organization of Mammary Tumors and the Ability of Tumor Cells to Replicate Mammary Tumor Virus and to Recognize Growth-Inhibitory Contact Signals In Vitro. CHARLES M. MCGRATH, S. NANDI, AND LAWRENCE YOUNG 367
Separation of Two Types of Adeno-Associated Virus Particles Containing Complementary Polynucleotide Chains. K. I. BERNS AND S. ADLER 394

Bacterial Viruses

Use of Miracil D to Suppress Bacterial Ribonucleic Acid and Protein Synthesis During Bacteriophage MS2 Infection. JANE HARRIS CRAMER AND ROBERT L. SINSHEIMER .. 189
Isolation of ϕX174 Specific Messenger Ribonucleic Acids In Vivo and Identification of Their 5′ Terminal Nucleotides. MARIE N. HAYASHI AND MASAKI HAYASHI 207
Characterization of Temperate Actinophage ϕC31 Isolated from *Streptomyces coelicolor* A3(2). N. D. LOMOVSKAYA, N. M. MKRTUMIAN, N. L. GOSTIMSKAYA, AND V. N. DANILENKO 258
Deoxyribonucleic Acid Synthesis in Bacteriophage SP01-Infected *Bacillus subtilis*. I. Bacteriophage Deoxyribonucleic Acid Synthesis and Fate of Host Deoxyribonucleic Acid in Normal and Polymerase-Deficient Strains. C. O. YEHLE AND A. T. GANESAN 263

Transduction of Gal+ by Coliphage T1. I. Role of Hybrids of Bacterial and Prophage λ Deoxyribonucleic Acid. HENRY DREXLER 273
Transduction of Gal+ by Coliphage T1. II. Role of λ Transcription Control in the Efficiency of Transduction. HENRY DREXLER 280
Bacteriophage T4 Head Morphogenesis. II. Studies on the Maturation of Gene 49-Defective Head Intermediates. RONALD B. LUFTIG AND CAROL GANZ 377
Structure of a Transducing Mycobacteriophage. L. M. KOZLOFF, C. V. SUNDAR RAJ, R. NAGARAJA RAO, V. A. CHAPMAN, AND S. DELONG 390
Study of Two Bacteriophages of *Bacillus stearothermophilus* Strain NCA1518. R. D. HUMBERT AND M. L. FIELDS 397

Volume 9 Contents for March Number 3

Animal Viruses

Ribonucleotide Reductase Activity of Synchronized KB Cells Infected with Herpes Simplex Virus. GARY H. COHEN 408
Proteins Specified by Herpes Simplex Virus. VI. Viral Proteins in the Plasma Membrane. JOCHEN W. HEINE, PATRICIA J. SPEAR, AND BERNARD ROIZMAN 431
Analysis of Simian Virus 40-Induced Transformation of Hamster Kidney Tissue In Vitro. VIII. Induction of Infectious Simian Virus 40 from Virogenic Transformed Hamster Cells by Amino Acid Deprivation or Cycloheximide Treatment. JOAN C. KAPLAN, SHARON W. WILBERT, AND PAUL H. BLACK 448
Nonproductive Infection and Induction of Cellular Deoxyribonucleic Acid Synthesis by Bovine Adenovirus Type 3 in a Contact-Inhibited Mouse Cell Line. K. TSUKAMOTO AND Y. SUGINO 465
Photoreactivation of a Cytoplasmic Virus. E. R. PFEFFERKORN AND MARY K. BOYLE ... 474
Gene Order of the Poliovirus Capsid Proteins. DAVID REKOSH 479
Deficiency of Viral Ribonucleic Acid-Dependent Deoxyribonucleic Acid Polymerase in Noninfectious Virus-Like Particles Released from Murine Sarcoma Virus-Transformed Hamster Cells. P. T. PEEBLES, D. K. HAAPALA, AND A. F. GAZDAR ... 488
Replication of Radiation-Induced Murine Leukemia Virus in Normal and Transformed Mouse Cells. SHIGEKO NOMURA, ROBERT H. BASSIN, AND PETER J. FISCHINGER 494
Viral Ribonucleic Acid Synthesis by Newcastle Disease Virus Mutants Isolated from Persistently Infected L Cells: Effect of Interferon. HARSHAD R. THACORE AND JULIUS S. YOUNGNER 503
Virus-Associated Nucleases: Evidence for Endonuclease and Exonuclease Activity in Rabbitpox and Vaccinia Viruses. ANNE-MARIE AUBERTIN AND B. R. MCAUSLAN ... 554
Simple Method for the Isolation of Encephalomyocarditis Virus Ribonucleic Acid. I. M. KERR AND E. M. MARTIN 559
Proposal for a Uniform Nomenclature for Simian Virus 40 Mutants. JAMES A. ROBB, PETER TEGTMEYER, ROBERT G. MARTIN, AND SAUL KIT 562

Bacterial Viruses

Identification and Genetic Characterization of Mutants of Bacteriophage T4 Defective in the Ability to Induce Exonuclease A. HUBER R. WARNER, D. PETER SNUSTAD, JAMES F. KOERNER, AND J. D. CHILDS 399
Polyamines in the Synthesis of Bacteriophage Deoxyribonucleic Acid. I. Lack of Dependence of Polyamine Synthesis on Bacteriophage Deoxyribonucleic Acid Synthesis. ARNOLD S. DION AND SEYMOUR S. COHEN 419
Polyamines in the Synthesis of Bacteriophage Deoxyribonucleic Acid. II. Requirement for Polyamines in T4 Infection of a Polyamine Auxotroph. ARNOLD S. DION AND SEYMOUR S. COHEN 423
Inactivation of Bacteriophage T4 by Ethyl Methanesulfonate: Influence of Host and Viral Genotypes. USHARANJAN RAY, LYNNE BARTENSTEIN, AND JOHN W. DRAKE ... 440
Relationship Between *Escherichia coli* B Titer and the Level of Deoxycytidylate Deaminase Activity Induced on Bacteriophage T2r+ Infection. ROBERT B. TRIMBLE, GLADYS F. MALEY, AND FRANK MALEY 454

Regulation of λ*rex* Expression After Infection of *Escherichia coli* K by Lambda Bacteriophage. LAZARUS ASTRACHAN AND JOAN F. MILLER 510
Three-Membered Parasitic System: a Bacteriophage, *Bdellovibrio bacteriovorus*, and *Escherichia coli*. MAZAL VARON AND RUEBEN LEVISOHN 519
Development of Coliphage T5: Ultrastructural and Biochemical Studies. MARTIN ZWEIG, HERBERT S. ROSENKRANZ, AND COUNCILMAN MORGAN 526
Deoxyribonucleic Acid Bacteriophage of *Methanomonas methylovora*. TOSHIKAZU OKI, HIROSHI NISHIDA, AND ASAICHIRO OZAKI 544
A Remeasurement of the Molecular Weights of T-Even Bacteriophage Substructural Proteins. DONALD J. CUMMINGS 547
Intergroup Lysis and Transduction by Streptococcal Bacteriophages. ALBA E. COLÓN, ROGER M. COLE, AND CARMEN G. LEONARD 551
Bacteriophage Lysozyme Synthesis in *Escherichia coli* K-12(λ) Infected with rII Mutant of Bacteriophage T4. KAI-KEUNG MARK 557

Volume 9 **Contents for April** **Number 4**

Animal Viruses

Saint Louis Encephalitis Viral Ribonucleic Acid Replication Complex. ATEEF A. QURESHI AND DENNIS W. TRENT 565
Contact-Inhibited Revertant Cell Lines Isolated from Simian Virus 40-Transformed Cells. III. Concanavalin A-Selected Revertant Cells. LLOYD A. CULP AND PAUL H. BLACK 611
Transcription of the Adenovirus Genome by an α-Amanitine-Sensitive Ribonucleic Acid Polymerase in HeLa Cells. RICHARD PRICE AND SHELDON PENMAN 621
State of Adenovirus 2 Deoxyribonucleic Acid in the Nucleus and Its Mode of Transcription: Studies with Isolated Viral Deoxyribonucleic Acid-Protein Complexes and Isolated Nuclei. ROBERT D. WALLACE AND JOSEPH KATES 627
In Vitro Translation of Cardiovirus Ribonucleic Acid by Mammalian Cell-Free Extracts. K. L. EGGEN AND A. J. SHATKIN 636
Cytoplasmic Compartmentalization of the Protein and Ribonucleic Acid Species of Vesicular Stomatitis Virus. ROBERT R. WAGNER, MICHAEL P. RILEY, RUTH M. SNYDER, AND CARL A. SCHNAITMAN 672
Surface-Active Agents for Isolation of the Core Component of Avian Myeloblastosis Virus. KURT STROMBERG 684
Impairment of Host Cell Ribonucleic Acid Polymerase II After Infection with Frog Virus 3. GABRIELLA CAMPADELLI-FIUME, FRANCO COSTANZO, ANNA MANNINI-PALENZONA, AND MICHELE LA PLACA 698
Comparison of Murine Sarcoma Viruses in Nonproducer and S^+L^--Transformed Cells. STUART A. AARONSON, ROBERT H. BASSIN, AND CLAIRE WEAVER 701
Integration of Simian Virus 40 Deoxyribonucleic Acid into the Deoxyribonucleic Acid of Permissive Monkey Kidney Cells. K. HIRAI AND V. DEFENDI 705
Replication of Viral Deoxyribonucleic Acid and Breakdown of Cellular Deoxyribonucleic Acid in Epstein-Barr Virus Infection. MEIHAN NONOYAMA AND JOSEPH S. PAGANO 714
Isolation of Simian Virus 40 Recombinants from Cells Infected with Oligomeric Forms of Simian Virus 40 Deoxyribonucleic Acid. DEL ROSE DUBBS, SAUL KIT, RUDOLF JAENISCH, AND ARNOLD J. LEVINE 717

Bacterial Viruses

Specific Endonuclease R Fragments of Bacteriophage φX174 Deoxyribonucleic Acid. MARSHALL H. EDGELL, CLYDE A. HUTCHISON III, AND MORTON SCLAIR 574
Comparisons of the Distribution of Nucleotides and Common Sequences in Deoxyribonucleic Acid from Selected Bacteriophages. A. SKALKA AND P. HANSON 583

Dominance Relationships in Mixedly Infected *Bacillus subtilis*. SANDRA PALEFSKI, H. ERNEST HEMPHILL, P. E. KOLENBRANDER, AND H. R. WHITELEY 594
New Deoxyribonucleic Acid Polymerase Induced by *Bacillus subtilis* Bacteriophage PBS2. ALAN R. PRICE AND SANDRA J. COOK 602
A Bacteriophage of *Bacillus subtilis* Which Forms Plaques Only at Temperatures Above 50 C. I. Physical and Chemical Characteristics of TSP-1. J. R. LAMONTAGNE AND W. C. MCDONALD 646
A Bacteriophage of *Bacillus subtilis* Which Forms Plaques Only at Temperatures Above 50 C. II. Reduction of TSP-1-Specific Receptor Sites on Cells Grown at 37 C or 45 C, and the Temperature-Dependent Inactivation of Replicating Phage. J. R. LAMONTAGNE AND W. C. MCDONALD 652
A Bacteriophage of *Bacillus subtilis* Which Forms Plaques Only at Temperatures Above 50 C. III. Inhibition of TSP-1-Specific Deoxyribonucleic Acid Synthesis at 37 C and 45 C. J. R. LAMONTAGNE AND W. C. MCDONALD 659
Morphology and Physical Properties of *Staphylocccus* Bacteriophage P11-M15. DENNIS T. BROWN, NEAL C. BROWN, AND BYRON T. BURLINGHAM 664
Lysogenic Conversion of *Pasteurella* by *Escherichia coli* Bacteriophage P1 *CM*. WILLIAM D. LAWTON AND DOROTHY M. MOLNAR 708

Insect Viruses

Granulosis Virus Deoxyribonucleic Acid: a Closed, Double-Stranded Molecule. M. D. SUMMERS AND D. L. ANDERSON 710

Volume 9 **Contents for May** **Number 5**

Animal Viruses

Mechanism of the Antiviral Activity Resulting from Sequential Administration of Complementary Homopolyribonucleotides to Cell Cultures. ERIK DE CLERCQ AND PIERRE DE SOMER 721
Genetic Relatedness of Type 1 and Type 2 Herpes Simplex Viruses. ELLIOTT KIEFF, BILL HOYER, STEVEN BACHENHEIMER, AND BERNARD ROIZMAN 738
Pattern of Protein Synthesis in Monkey Cells Infected by Simian Virus 40. CARL W. ANDERSON AND RAYMOND F. GESTELAND 758
Hybridization of Rous Sarcoma Virus Deoxyribonucleic Acid Polymerase Product and Ribonucleic Acids from Chicken and Rat Cells Infected with Rous Sarcoma Virus. JOHN M. COFFIN AND HOWARD M. TEMIN 766
Selective Association of Sindbis Virion Proteins with Different Membrane Fractions of Infected Cells. H. R. BOSE AND M. A. BRUNDIGE 785
Endonuclease Activity Associated with Purified Simian Virus 40 Virions. JOAN C. KAPLAN, SHARON M. WILBERT, AND PAUL H. BLACK 800
Effect of Sendai Virus Infection on Lipid Metabolism in Chick Embryo Fibroblasts. CAROL D. BLAIR AND PATRICK J. BRENNAN 813
Gene Order of Encephalomyocarditis Virus as Determined by Studies with Pactamycin. BYRON E. BUTTERWORTH AND ROLAND R. RUECKERT 823
Trypsin Action on the Growth of Sendai Virus in Tissue Culture Cells. II. Restoration of the Hemolytic Activity of L Cell-Borne Sendai Virus by Trypsin. MORIO HOMMA 829
Composition and Size of Shope Fibroma Virus Deoxyribonucleic Acid. B. JACQUEMONT, J. GRANGE, L. GAZZOLO, AND M. H. RICHARD 836
Solubilization of Envelopes of HVJ (Sendai Virus) with Alkali-Emasol Treatment and Reassembly of Envelope Particles with Removal of the Detergent. KAZUFUMI SHIMIZU, YASHUHIRO HOSAKA, AND YOHKO K. SHIMIZU 842
Release of Rubella Virus Ribonucleic Acid from Ribonucleoprotein by Polyanions. TAPANI HOVI 879

Bacterial Viruses

Unrelatedness of Temperate *Bacillus subtilis* Bacteriophages SP02 and ϕ105. LARS RUTBERG, RICHARD W. ARMENTROUT, AND JON JONASSON 732
New Deoxyribonuclease Activity After Bacteriophage P22 Infection. MARY WOODWORTH-GUTAI, VANCE ISRAEL, AND MYRON LEVINE 746
Inhibitory Effect of Bacteriophage P22 Infection on Host Cell Deoxyribonuclease Activity. VANCE ISRAEL, MARY WOODWORTH-GUTAI, AND MYRON LEVINE 752
Nucleic Acid Synthesis in Bacteriophage SP02c_1-Infected *Bacillus subtilis*. P. E. KOLENBRANDER, H. ERNEST HEMPHILL, AND H. R. WHITELEY 776
Effect of R17 Bacteriophage-Specific Proteins on Ribosomal Ribonucleic Acid Synthesis of *Escherichia coli*. VIRGINIA L. SPANGLER AND WALLACE J. IGLEWSKI 792
Regulation of Bacteriophage T5 Development by Coli Factors. R. W. MOYER, A. S. FU, AND C. SZABO 804
Isolation of a Polyvalent Bacteriophage for *Escherichia coli, Klebsiella pneumoniae*, and *Aerobacter aerogenes*. K. A. SOUZA, H. S. GINOZA, AND R. D. HAIGHT 851
Coordinate Variation in Lengths of Deoxyribonucleic Acid Molecules and Head Lengths in Morphological Variants of Bacteriophage T4. GISELA MOSIG, JANET RENSHAW CARNIGHAN, JANE BAXANDALL BIBRING, ROBERT COLE, HANS-GEORG OTTO BOCK, AND SUSAN BOCK 857
Bacteriophage T4 Head Models Based on Icosahedral Symmetry. D. H. WALKER, JR., G. MOSIG, AND M. E. BAYER 872
Isolation of Bacteriophages from Group H Streptococci. C. LOWELL PARSONS, ALBA E. COLON, CARMEN G. LEONARD, AND ROGER M. COLE 876

Volume 9 Contents for June Number 6

Animals Viruses

Incorporation of L Cell Sterols into Vesicular Stomatitis Virus. SANDRA R. BATES AND GEORGE H. ROTHBLAT 883
Virus-Specific Ribonucleic Acid in Cells Producing Rous Sarcoma Virus: Detection and Characterization. JO-ANN LEONG, AXEL-CLAUDE GARAPIN, NOLA JACKSON, LOUIS FANSHIER, WARREN LEVINSON, AND J. MICHAEL BISHOP 891
Assay for Secondary Structure in Ribonucleic Acid. DEAN L. ENGELHARDT 903
Ribonucleic Acid Synthesis of Vesicular Stomatitis Virus. IV. Transcription by Standard Virus in the Presence of Defective Interfering Particles. ALICE S. HUANG AND ERNEST K. MANDERS 909
Structure and Function of the Polypeptides in Simian Virus 40. I. Existence of Subviral Deoxynucleoprotein Complexes. ENG-SHANG HUANG, MARY K. ESTES, AND JOSEPH S. PAGANO 923
Structure and Function of the Polypeptides in Simian Virus 40. II. Transcription of Subviral Deoxynucleoprotein Complexes In Vitro. ENG-SHANG HUANG, MEIHAN NONOYAMA, AND JOSEPH S. PAGANO 930
Genome Homology of Vesicular Stomatitis Virus and Defective T Particles and Evidence for the Sequential Transcription of the Virion Ribonucleic Acid. POLLY ROY AND D. H. L. BISHOP 946
Genetic Analysis of Simian Virus 40. III. Characterization of a Temperature-Sensitive Mutant Blocked at an Early State of Productive Infection in Monkey Cells. JAMES A. ROBB AND ROBERT G. MARTIN 956
Genetic Analysis of Simian Virus 40. IV. Inhibited Transformation of Balb/3T3 Cells by a Temperature-Sensitive Early Mutant. JAMES A. ROBB, HELENE S. SMITH, AND CHARLES D. SCHER 969
Synthesis In Vitro of Type 5 Adenovirus Capsid Proteins. JAMES M. WILHELM AND HAROLD S. GINSBERG 973

Immunological Reactivity of Antisera Prepared Against the Sodium Dodecyl Sulfate-Treated Structural Polypeptides of Adenovirus-Associated Virus. F. BRENT JOHNSON, NEIL R. BLACKLOW, AND M. DAVID HOGGAN 1017
Absence of Ribonucleic Acid Methylase in the Avian Myeloblastosis Virus Core. RAYMOND GANTT, KURT STROMBERG, AND BARBARA JULIAN 1057
Absence of Leukosis Virus Markers in Hamster Cells Transformed by Herpes Simplex Virus Type 2. FRED RAPP, RICHARD CONNER, RONALD GLASER, AND RONALD DUFF 1059

Bacterial Viruses

Metabolism of T4 Bacteriophage Ghost-Infected Cells. II. Do Ghosts Cause a Generalized Permeability Change? DONNA HARDY DUCKWORTH AND HERBERT H. WINKLER 917
Gene Regulation in *N* Mutants of Bacteriophage λ. DONALD COURT AND ALLAN CAMPBELL 938
Genetic and Physiological Studies of Bacteriophage T5. III. Patterns of Deoxyribonucleic Acid Synthesis Induced by Mutants of T5 and the Identification of Genes Influencing the Appearance of Phage-Induced Dihydrofolate Reductase and Deoxyribonuclease. HERBERT E. HENDRICKSON AND D. JAMES MCCORQUODALE 981
On the Direction of Reading of Bacteriophage T4 Gene 43 (Deoxyribonucleic Acid Polymerase). P. V. O'DONNELL AND J. D. KARAM 990
Mycosides C: Behavior as Receptor Site Substance for Mycobacteriophage D4. MAYER B. GOREN, J. K. MCCLATCHY, BARBARA MARTENS, AND OLGA BROKL 999
Effects of Ionizing Radiation on the Capacity of *Escherichia coli* to Support Bacteriophage T4 Growth. HOWARD MARSDEN, WILLIAM GINOZA, AND ERNEST C. POLLARD 1009
Ultraviolet-Induced Cross-Links in the Deoxyribonucleic Acid of Single-Stranded Deoxyribonucleic Acid Viruses as a Probe of Deoxyribonucleic Acid Packaging. BERTOLD FRANCKE AND DAN S. RAY 1027
Organization of Gene Function in *Bacillus subtilis* Bacteriophage SP82G. D. MACDONALD GREEN AND DAVID LAMAN 1033
Bacteriophage T4 Head Morphogenesis. III. Some Novel Properties of Gene 13-Defective Heads. DANIEL L. HAMILTON AND RONALD B. LUFTIG 1047

SPORES V

Edited by
HARLYN O. HALVORSON, RICHARD HANSON, AND
L. LEON CAMPBELL

A publication comprising the papers presented at the Fifth International Spore Conference, held at Fontana, Wisconsin, 8–10 October 1971.

This book contains reviews as well as reports of original and basic research in eight related areas of interest regarding spores.

1. Structure and chemical nature of spores.
2. Genetics of spore forms.
3. Biochemical changes during sporulation: Sporulation-related events.
4. Regulation of macromolecular synthesis during sporulation and outgrowth.
5. Ecology of spore forms.
6. Immunology of spores and spore forms.
7. Cryptobiosis: Dormancy and its alterations.
8. Biochemical mechanisms of germination.

This book will serve as a valuable resource book for investigators, teachers, students, industry, and libraries.

1972 471 pages $10*

Publications Office
AMERICAN SOCIETY FOR MICROBIOLOGY
1913 I St., N.W.
Washington, D.C. 20006

* Members of ASM are entitled to purchase copies for personal use at the member price of $5 per copy.

JOURNAL OF VIROLOGY, June 1972, p. i–ii
Vol. 9, No. 6
Copyright © 1972 American Society for Microbiology
Printed in U.S.A.

AUTHOR INDEX
VOLUME 9

Aaronson, Stuart A., 110, 701
Adler, S., 394
Anderson, D. L., 710
Aoki, Tadao, 359
Arif, B. M., 102
Astrachan, Lazarus, 510
Aubertin, Anne-Marie, 554

Bartenstein, Lynne, 440
Baird, Judith P., 17
Banerjee, A. K., 61
Bartgis, I. Louise, 326
Bassin, Robert H., 494, 701
Bates, Sandra R., 883
Beard, J. W., 90
Berns, K. I., 394
Bialy, H. S., 286
Bishop, D. H. L., 946
Bishop, J. Michael, 891
Black, Paul H., 448, 611
Blacklow, Neil R., 1017
Blackman, Kenneth E., 290
Blonski, Ronald, 96
Bonar, R. A., 90
Bourguignon, Gerard J., 17
Boyle, Mary K., 187, 474
Brokl, Olga, 999
Brown, Dennis T., 664
Brown, Neal C., 664
Bubel, H. Curt, 290
Burlingham, Byron T., 664

Campadelli-Fiume, Gabriella, 698
Campbell, Allan, 938
Chapman, V. A., 390
Chernos, V. I., 251
Childs, J. D., 399
Cohen, Gary H., 408
Cohen, Seymour S., 419, 423
Colby, C., 286
Cole, Roger M., 551
Colón, Alba E., 551
Cook, Sandra J., 602
Conner, Richard, 1059
Costanzo, Franco, 698
Court, Donald, 938
Cramer, Jane Harris, 189
Crouch, Norman A., 223
Culp, Lloyd A., 611
Cummings, Donald J., 547

Daniel, Wendell A., 342
Danilenko, V. N., 258
Deeb, Samir S., 174
Defendi, V., 705
DeLong, S., 390
Diamond, Louis S., 326, 342
Dion, Arnold S., 419, 423
Doerfler, Walter, 297
Downer, Donald N., 216
Doyle, M., 22
Drake, John W., 440
Drexler, Henry, 273, 280
Dubbs, Del Rose, 717
Duckworth, Donna Hardy, 917
Duff, Ronald, 1059

Edgell, Marshall H., 574
Eggen, K. L., 636
Engelhardt, Dean L., 903
Erikson, Eleanor, 231
Erikson, R. L., 231
Estes, Mary K., 923

Fanshier, Lois, 891
Faulkner, P., 102
Feeney, William, 96
Fields, M. L., 397
Fischer, Hans, 1
Fischinger, Peter J., 494
Fleissner, Erwin, 359
Francke, Bertold, 1027
Franklin, Richard M., 75

Ganesan, A. T., 263
Gantt, Raymond, 1057
Ganz, Carol, 377
Garapin, Axel-Claude, 891
Gazdar, A. F., 488
Gentry, Glenn A., 216
Ghendon, Y. Z., 251
Ginoza, William, 1004
Ginsberg, Harold S., 973
Glaser, Ronald, 1059
Goren, Mayer B., 999
Gostimskaya, N. L., 258
Green, D. MacDonald, 1033

Haapala, D. K., 488
Hamilton, Daniel L., 1047
Hanson, P., 583
Hayashi, Marie N., 207
Hayashi, Masaki, 207
Heine, Jochen W., 431
Hemphill, H. Ernest, 594
Hendrickson, Herbert E., 981
Hirai, K., 705
Hirsch-Kauffmann, Monica, 297
Hoggan, M. David, 1017
Holland, J. J., 22
Hovi, Tapani, 10
Huang, Alice S., 909
Huang, Eng-Shang, 923, 930
Humbert, R. D., 397
Hurwitz, Jerard, 116, 130
Hutchison, Clyde A. III, 574

Iinuma, Masao, 234
Incardona, Nino L., 96
Ishida, Nakao, 182
Ishizaki, R., 90

Jackson, Nola, 891
Jaenisch, Rudolf, 717
Johnson, F. Brent, 1017
Julian, Barbara, 1057

Kaplan, Joan C., 448
Karam, J. D., 990
Kates, Joseph, 627
Kerr, I. M., 559
Kiley, Michael P., 672
Kit, Saul, 562, 717
Koerner, James F., 399
Kolenbrander, P. E., 594
Korant, B. D., 29
Kozloff, L. M., 390

LaFiandra, A., 61
Laman, David, 1033
LaMontagne, J. R., 646, 652, 659
La Placa, Michele, 698
Lavi, Sara, 309
Lawton, William D., 708
Leis, Jonathan P., 116, 130
Leonard, Carmen G., 551
Leong, Jo-Ann, 891
Levine, Arnold J., 717
Levinson, Warren, 891
Levisohn, Rueben, 519
Libshits, B. A., 251
Lomovskaya, N. D., 258
Lonberg-Holm, K., 29
Lotz, Wolfgang, 160
Luftig, Ronald B., 377, 1047
Lundholm, Ulla, 297

McAuslan, B. R., 70, 554
McClatchy, J. K., 999
McCorquodale, D. James, 981
McDonald, W. C., 646, 652, 659
McGrath, Charles M., 367
Maeno, Koichiro, 234
Maley, Frank, 454
Maley, Gladys F., 454
Manders, Ernest K., 909
Mannini-Palenzona, Anna, 698
Mark, Kai-Keung, 557
Marsden, Howard, 1004
Martens, Barbara, 999
Martin, E. M., 559
Martin, Robert G., 562, 956
Matsumoto, Toshisada, 234
Mattern, Carl F. T., 326, 342
Mayer, Frank, 160

Miller, Joan F., 510
Mkrtumian, N. M., 258
Molnar, Dorothy M., 708
Morgan, Councilman, 526

Nagai, Yoshiyuki, 234
Nagaraja Rao, R., 390
Nandi, S., 367
Nishida, Hiroshi, 544
Nomura, Shigeko, 494
Nonoyama, Meihan, 714, 930
Nowinski, Robert C., 359

O'Donnell, P. V., 990
Oki, Toshikazu, 544
Ozaki, Asaichiro, 544
Ozer, Harvey L., 41, 52

Pagano, Joseph S., 714, 923, 930
Palefski, Sandra, 594
Parks, Wade P., 110
Peebles, P. T., 488
Penman, Sheldon, 621
Pfefferkorn, E. R., 187, 474
Pollard, Ernest C., 1004
Preble, Olivia T., 200
Price, Alan R., 602
Price, Richard, 621

Qureshi, Ateef A., 565

Randall, Charles C., 216
Rapp, Fred, 223, 1059
Ray, Dan S., 1027
Ray, Purnima, 184
Ray, Usharanjan, 440
Rekosh, David, 479
Robb, James A., 562, 956, 969
Rogers, Howell W., 216
Roizman, Bernard, 143, 431
Rosenkranz, Herbert S., 526
Ross, Jeffrey, 110
Rothblat, George H., 883
Roy, Polly, 946

Sarkar, Nurul H., 359
Sauer, Gerhard, 1
Scher, Charles D., 969
Schnaitman, Carl A., 672
Sclair, Morton, 574
Scolnick, Edward M., 110
Sharp, Phillip A., 317
Shatkin, A. J., 61, 636
Shirachi, Ryoichi, 182
Sinha, Navin K., 184
Sinsheimer, Robert L., 189
Skalka, A., 583
Smith, Charles A., 317
Smith, Helene, S. 969
Snustad, Peter, 184
Snustad, D. Peter, 399
Snyder, Ruth M., 672
Spear, Patricia G., 143
Spear, Patricia J., 431
Sternglanz, Rolf, 17
Stromberg, Kurt, 684, 1057
Sugino, Y., 465
Sukeno, Noriyoshi, 182
Summers, M. D., 710
Sundar Raj, C. V., 390

Tai, Henry T., 317
Tan, K. B., 70
Tegtmeyer, Peter, 52, 562
Thacore, Harshad R., 503
Todaro, George J., 110
Trent, Dennis W., 565
Trimble, Robert B., 454
Truden, Judith L., 75
Tsukamoto, K., 465

Vaheri, Antti, 10
Varon, Mazal, 519
Vinograd, Jerome, 317

Wagner, Robert R., 672
Wallace, Robert D., 627
Ward, R., 61
Warner, Huber R., 184, 399
Weaver, Claire, 701
Weber, J., 244
Wertz, Gail W., 85
Whiteley, H. R., 594
Wilbert, Sharon W., 448
Wilhelm, James M., 973
Winkler, Herbert H., 917
Winocour, Ernest, 309

Yakobson, E., 251
Yamaguchi, Junji, 182
Yehle, C. O., 263
Yohn, D. S., 244
Yoshida, Tetsuya, 234
Young, Lawrence, 367
Youngner, Julius S., 85, 200, 503

Zweig, Martin, 526

JOURNAL OF VIROLOGY, June 1972, p. iii–vii
Vol. 9, No. 6
Copyright © 1972 American Society for Microbiology
Printed in U.S.A.

SUBJECT INDEX
VOLUME 9

(ABRM$_2$ → HK-9) → HB-301 polyhedral particle
—morphogenesis, 342
Acetone
—rabbitpox virus replication, 251
Actinophage ϕC31
—characterization, 258
Adeno-associated virus
—separation of two virion types, 394
Adenosine triphosphatase
—replication of HVJ, 234
Adenovirus
—intracellular forms of DNA, 297
—polypeptide components VP1, VP2, and VP3, 1017
—SDS-treated structural polypeptides, 1017
—type 12; DNA-protein complex in infected cells, 297
Adenovirus 2 deoxyribonucleic acid
—mode of transcription in nucleus, 627
Adenovirus genome
—transcription by α-amanitine-sensitive RNA polymerase, 621
Adenovirus proteins
—in vitro synthesis, 973
Adenovirus ribonucleic acid
—synthesis, 627
Aerobacter aerogenes
—isolation of polyvalent phage, 851
α-Amanitine
—sensitive RNA polymerase, 621
Amber mutants
—physiological and biochemical properties, 981
—direction of translation for gene 43 DNA polymerase, 990
Amino acid deprivation
—induction of infectious SV40, 448
ara-C
—identification of proteins, 1
Arginine
—synthetase activity, 231
Australia antigen
—reduction and reoxidation, 182
Avian C-type viruses
—reverse transcriptase, 110
Avian myeloblastosis virus
—characterization, 116
—RNA methylase in viral core, 1057
—tRNA synthetase activity, 231
Avian tumor virus
—group-specific antigens, 90
—gs antigens and antibody detection, 244

Bacillus stearothermophilus
—phages, 397
Bacillus subtilis
—DNA polymerase induced by phage PBS2, 602
—DNA synthesis in phage SP01-infected, 263
—gene function in phage SP82G, 1033
—host ranges and specificity, 594
—phage SPO2c$_1$-infected, 776
—phages SPO2 and ϕ105, 732
—phage TSP-1, 646, 652, 659
Bacteriocin
—biological properties, 160
Bacteriophage
—group H streptococci, 876
—isolation for *E. coli*, *K. pneumoniae*, and *A. aerogenes*, 851
—*Staphylococcus* P11-M15, 664
Bacteriophage λ
—gene regulation in *N* mutants, 938
Bacteriophage ϕ80
—cistron 13 product, 174
Bacteriophage deoxyribonucleic acid synthesis
—accumulation of putrescine and spermidine, 419
Bacteriophage M13
—DNA packaging, 1027
Bacteriophage MS2, 189
Bacteriophage *N*$^-$*nin cro*
—sensitivity to P2 inhibition, 938
Bacteriophage P2
—RNA secondary structure, 903
Bacteriophage P22
—infection, 746, 752
—inhibitory effect, 752
Bacteriophage PBS2
—DNA polymerase induced by *B. subtilis*, 602
Bacteriophage R17
—inhibition of rRNA synthesis by proteins, 792
—phage-specific polysomes, 75
—protein synthesis, 75
Bacteriophage SP82G
—gene function in *B. subtilis*, 1033
Bacteriophage SPO1
—infected *B. subtilis*, 263
Bacteriophage SPO2c$_1$
—infection of *B. subtilis*, 776
Bacteriophage T2r$^+$
—induced early enzymes, 454
Bacteriophage T4
—direction of reading gene 43, 990
—DNA molecule and head lengths, 857
—gene 13-defective heads, 1047
—ghost infection effect on cell membrane, 917
—head models based on icosahedral symmetry, 872
—head morphogenesis, 377
—inactivation by ethyl methanesulfonate, 440
—loss of growth support by *E. coli*, 1004
—mutants defective in induction of exonuclease A, 399
—polyamines in DNA synthesis, 419, 423
—transcription and translation in *E. coli*, 1004
Bacteriophage T4 mutant
—mapping of gene *denA*, 184
Bacteriophage T4rII
—lysozyme production, 557
—*2rex*$^+$ gene, 510

Bacteriophage T5
—ColI factor regulation, 804
—mutants inducing DNA synthesis, 981
—structural gene for DNA polymerase, 981
Bacteriophage TSP-1
—*B. subtilis*, 646, 652, 659
Bacteriophage ϕX174
—DNA packaging, 1027
—eclipse and mechanism of adsorption, 96
—endonuclease R fragments of DNA, 574
Bacteriophages GH5 and GH8
—*B. stearothermophilus*, 397
Bacteriophages SPO2 and ϕ105
—DNA synthesis, 732
Balb/3T3 cells
—transformation by SV40 ts mutant, 969
Bdellophages
—properties and behavior, 519
Bdellovibrio bacteriovorus
—parasitic system, 519
BHK-21/13 cells
—SLE virus-infected, 565
Bovine adenovirus 3
—induction of DNA synthesis, 465
—nonproductive injection, 465

Capsid protein I
—synthesis and incorporation, 52
Cardiovirus
—in vitro translation of RNA, 636
Cell membrane
—barrier function in T4 ghost infection, 917
Chick embryo cells
—viral RNA synthesis, 503
Cistron 13 product
—ϕ80 tail assembly, 174
ColI factor
—phage T5 development, 804
Coliphages
—P1, T7, and T5, 583
Coliphage T1
—transduction of Gal$^+$, 273
Coliphage T5
—developmental cycle, 526
—ultrastructural and biochemical studies, 526
Concanavalin A
—selected revertant cells, 611
Contact-inhibited mouse kidney cell line
—induced DNA synthesis, 465
Core component
—methylase activity in AMV, 1057
Cystine
—synthetase activity, 231
C-type viruses
—reverse transcriptase, 110

Deoxycytidylate deaminase
—phage T2r$^+$-induced, 454
Deoxynucleoprotein complex
—SV40, 923, 930
Deoxyribonuclease
—activity after phage P22 infection, 746, 752
—T5 structural genes, 981
Deoxyribonucleic acid
—adenovirus, intracellular forms, 297
—coliphage λ, 583
—endonuclease R fragments of phage ϕX174, 574
—form I conversion to nicked form, 800
—granulosis virus, 710
—host DNA in SV40 DNA, 309
—HSV-1 and HSV-2; genetic relatedness, 738
—hybridization of RSV polymerase product, 766
—molecule and head lengths, 857
—nucleotide distribution and sequences, 583
—oligomeric forms of SV40, 717
—packaging in ϕX174 and M13, 1027
—polymerase induced by *B. subtilis* phage PBS2, 602
—protein complex in adenovirus-infected cell, 297
—protein complexes, 627
—replication and breakdown in Epstein-Barr virus infection, 714
—RNA-dependent DNA polymerase activity, 116
—sequence heterogeneity in SV40 DNA, 317
—SFV DNA, 836
—synthesis in phage SPO2C$_1$-infected *B. subtilis*, 776
—synthesis in phages SPO2 and ϕ105, 732
—transcription of viral DNA, 923, 930
—UV-induced cross-links, 1027
Deoxyribonucleic acid bacteriophages
—effect of nalidixic acid, 17
Deoxyribonucleic acid polymerase
—direction of synthesis, 990
Deoxyribonucleic acid synthesis
—gene function in *B. subtilis* phage SP82G, 1033
—induced by T5 mutants, 981
—phage SP01-infected *B. subtilis*, 263
Dihydrofolate reductase
—gene affecting synthesis, 981
Disulfide bonds
—role in constitution of Australian antigen, 182

Eclipse
—human rhinoviruses, 29
—phage ϕX174, 96
Electron microscopy
—phage precursors in gene 13-defective heads, 1047
Emasol
—solubilization of HVJ envelopes, 842
Emetine
—mapping of poliovirus capsid proteins, 479
Encephalomyocarditis virus
—gene order, 823
—RNA isolation, 559
Endonuclease
—activity associated with SV40 virions, 800
—R fragments, 574
Entamoeba histolytica
—viruses, 326, 342
Epstein-Barr virus infection
—DNA replication and breakdown, 714
Equine herpesvirus
—protein kinase activity, 216
Escherichia coli
—isolation of polyvalent phage, 851
—phage R17-infected, 792
—phage T5$^+$, 526
—rRNA synthesis, 792
—T4 growth support after irradiation, 1004

Escherichia coli K-12(2)
—phage lysozyme synthesis, 557
Ethyl methanesulfonate
—inactivation of phage T4, 440
—influence of genotypes, 440
Exonuclease A
—mutation affecting induction, 399

Frog virus 3
—photoreactivation, 474

Gal$^+$
—transduction by coliphage T1, 273
(λ-*gal*) T1 hybrids
—transduction of Gal$^+$, 273
Gene 13
—defective head precursors, 1047
Gene 49
—defective head intermediates, 377
Gene *denA*
—mapping, 184
λ Genes
—transcription and transduction of Gal$^+$, 280
Ghosts
—T4, 917
Granulosis virus
—DNA, 710
Group H streptococci
—phage isolation, 876
Group-specific antigens
—avian RNA tumor viruses, 90
—immunoelectrophoretic study, 90

HeLa Cells
—attachment of rhinoviruses, 29
—receptor sites, 29
—virus-induced interference, 22
Hemagglutinin
—vaccine virus, origin, 290
Herpes simplex virus
—cell-dependent differences in production, 223
—elevated temperature, 216
—genetic relatedness of types 1 and 2, 738
—purification of virions, 143
—ribonucleotide reductase in infected KB cells, 408
—specified membrane proteins, 431
—structural proteins of virion, 143
—type 2; absence of leukosis virus, 1059
—unimpeded replication in kB cells, 408
HVJ
—effect of ouabain on growth, 234
—reassembly of envelope particles, 842

Icosahedral virus
—phage T4 head models, 872
INCO particles
—morphology and mechanism of adsorption, 160
Interferon
—RNA synthesis, 503
In vitro synthesis
—type 5 adenovirus proteins, 973
Ionizing radiation
—effect on T4 growth support by *E. coli*, 1004

Klebsiella pneumoniae
—isolation of polyvalent phage, 851

L cell
—borne Sendai virus, 829
L cells
—infection by VSV, 883
—inhibition of protein synthesis, 85
—NDV-infected, 200
—reovirus-infected, 61
—sterol synthesis, 883
—ts mutants, 200
—viral RNA synthesis, 503
Leukemia virus
—sarcoma virus, 359
Leukosis virus
—absence in HSV-2 transformed cells, 1059
Lipid
—metabolism in Sendai virus-infected fibroblasts, 813
L Sendai
—hemolytic activity, 829
Lysine
—synthetase activity, 231

Mammary tumor virus
—replication, 367
Messenger ribonucleic acid
—φX174 specific, 207
Metabolic inhibitors
—induction of infectious SV40, 448
Methanomonas methylovora
—DNA phage, 544
Miracil D
—selective labeling of viral RNA, 189
Mouse 3T3 cells
—RadLV replication, 494
Murine leukemia virus
—radiation-induced replication, 494
—requirement for MSV production, 488
Murine sarcoma virus
—DNA polymerase deficiency, 488
Mutant *ts*101*
—SV40 temperature-sensitive mutant, 956
Mycobacteriophage
—structure, 390
Mycobacteriophage D4
—mycosides C as receptor site substance, 999
Mycobacterium smegmatis
—transducing phage I3, 390
Mycobacterium species
—mycosides C, 999
Mycosides C
—receptor site substance for mycobacteriophage D4, 999

Nalidixic acid
—DNA phages, 17
Newcastle disease virus
—RNA synthesis, 503
—*ts* mutants in infected L cells, 200
N mutants
—gene regulation in phage λ, 938
Nomenclature
—SV40 mutants, 562

Nuclease activity
—rabbitpox and vaccinia virus, 554

Oncornaviruses
—protein separation and analysis, 359
Ouabain
—inhibition of HJV, 234

Pactamycin
—determination of gene order of EMC virus, 823
Pactamycin technique
—mapping of poliovirus capsid proteins, 479
Paired radioiodine-labeled antibody technique
—avian tumor virus gs antigen detection, 244
Phage-specific polysomes
—synthesis, 75
Photoreactivation
—frog virus 3, 474
Plasma membranes
—association with Sindbis virion proteins, 785
—purification and analysis, 431
Poliovirus capsid proteins
—gene order, 479
Poliovirus type 1
—dominance over vesicular stomatitis virus, 22
—infected HeLa cells, 22
Polyamines
—synthesis of phage DNA, 419, 423
Polyanions
—release of rubella virus RNA, 879
Polyhedral particle
—morphogenesis of (ABRM$_2$ → HK-9) → HB-301, 342
Polymerase
—host DNA in deficient strains, 263
Polynucleotide chains
—adeno-associated virus particles, 394
Polypeptides
—adenovirus-associated virus, 1017
—SV40; structure and function, 923, 930
Poly(rC)
—antiviral activity after administration with poly(rI), 721
Poly(rI)
—antiviral activity after administration with poly(rC), 721
Polyribosomes
—in vitro synthesis of adenovirus proteins, 973
Polyuridylate
—secondary structure, 903
Poxvirus
—DNA-dependent DNA polymerase, 70
Pronase
—release of rubella virus RNA, 879
Protein kinase
—activity in equine herpesvirus, 216
Proteins
—oncornaviruses, 359
Protein synthesis
—inhibition in L cells, 85
—SV40-infected cells, 758

Rabbitpox virus
—acetone, 251
—nuclease activity, 554
Radiation-induced leukemia virus
—replication, 494
Rauscher leukemia viruses
—characterization, 116
Reverse transcriptase
—MSV and MuLV, 488
—RNA tumor viruses, 110
2rex gene
—expression, 510
Reovirus
—growth cycle in L cells, 61
Rhinoviruses
—interaction with host cells, 29
Rhizobium lupini
—isolation and characterization of bacteriocin, 160
Ribonucleic acid
—homopolymers, 721
—hybridization with host DNA, 891
—in vitro translation of cardiovirus, 636
—phage f2, 903
—reovirus-specific, 61
—ribosomal, synthesis of *E. coli*, 792
—RNA-dependent DNA polymerase activity, 130
—RSV specific, 766, 891
—Rubella virus, release from ribonucleoprotein, 879
—secondary structure, 903
—selective labeling, 189
—Sindbis virus, 102, 903
—SLE virus replication complex, 565
—suppression by Miracil C, 189
—synthesis in phage SP02c$_1$-infected *B. subtilis*, 776
—transcription in VSV, 909
—vesicular stomatitis virus transcription product, 946
Ribonucleic acid isolation
—encephalomyocarditis virus, 559
Ribonucleic acid methylase
—absence in AMV core, 1057
Ribonucleic acid polymerase
—transcription of the adenovirus genome, 621
Ribonucleic acid species
—VS virus, 672
Ribonucleic acid synthesis
—vaccina virus, 286
Ribonucleic acid tumor virus
—absence in HSV-2 transformed cells, 1059
Ribonucleoprotein
—release of rubella virus RNA, 879
—rubella virus, 10
Ribonucleotide reductase
—HSV-infected kB cells, 408
Rous sarcoma virus
—DNA polymerase product hybridization, 766
—DNA-RNA hybridization, 766
—viral RNA in infected cells, 891
Rubella virus
—ribonucleoprotein and envelope fraction, 10
—RNA, release from ribonucleoprotein, 879

Saint Louis encephalitis virus
—replication complex, 565
Salmonella typhimurium
—phage P22-infected, 746

Sarcoma virus
—leukemia virus, 359
Sendai virus
—lipid metabolism, 813
—trypsin action in infected cells, 829
Shope fibroma virus
—DNA, 836
Simian virus 40
—con A-selected revertant cells, 611
—endonuclease activity associated with SV40 virions 800
—genetic analysis, 956
—host DNA in SV40 DNA, 309
—identification of virus-induced proteins, 1
—induced transformation of hamster kidney tissue, 448
—intact virions and empty shells, 41
—major capsid protein, 52
—mutant *ts*101*, 956
—polypeptides, 922, 930
—procedure for viral particle isolation, 41
—protein synthesis pattern in infected cells, 758
—recombinant isolation, 717
—sequence heterogeneity in SV40 DNA, 317
—synthesis and assembly, 41, 52
Simian virus 40 mutants
—nomenclature, 562
Sindbis virion proteins
—inhibition of synthesis, 187
Sindbis virus
—association of protein with plasma membrane, 785
—genome, 102
—RNA secondary structure, 903
Smooth membranes
—association with Sindbis virion proteins, 785
Sodium dodecyl sulfate
—treatment of adenovirus polypeptides, 1017
Staphylococcus
—phage P11-M15, 664
Sterols
—incorporation by VSV, 883
Streptococcal phages
—lysis and transduction, 551
Streptomyces coelicolor A3(2)
—actinophage ϕC31, 258
Substructural proteins
—T-even phage, 547

T antigen
—synthesis initiated by 101 virions, T-11
5′ Terminal nucleotides
—ϕX174-specific mRNA, 207
T-even bacteriophage
—protein molecular weight, 547
Thin-layer chromatography
—isolation of ϕX174-specific mRNA, 207
T particles
—vesicular stomatitis virus, enzyme activity, 946
TPCK
—mechanism of action, 187
Transcriptase
—vaccinia virus, 286
Transfer ribonucleic acid
—synthetase activity, 231
Trichoplusia ni
—granulosis virus DNA, 710
Trypsin
—treatment on Sendai virus-infected cells, 829
Tryptophan
—synthetase activity, 231
Temperature-sensitive mutants
—NDV-infected L cells, 200
Tumor cells
—replication of MTV, 367

Vaccinia virus
—hemagglutinin origin, 290
—inhibition of RNA synthesis, 286
—nuclease activity, 554
Vesicular stomatitis virus
—genome homology, 946
—inhibition of protein synthesis in L cells, 85
—protein and RNA species, 672
—RNA transcription, 909
—sterol incorporation from host cell, 883
—T particles, 909
—transcription product RNA, 946
—virion production interference, 22
101 Virions
—T antigen synthesis, 969
Virus agents
—*E. histolytica*, 326, 342

JOURNAL

OF

VIROLOGY

VOLUME 10

BALTIMORE, MD. 21202
1972

JOURNAL OF VIROLOGY

VOLUME 10 • 1972

EDITORIAL BOARD

Robert R. Wagner, *Editor-in-Chief* (1977)
University of Virginia School of Medicine, Charlottesville

Myron Levine, *Editor* (1976)
School of Medicine, University of Michigan, Ann Arbor

Norman P. Salzman, *Editor* (1975)
National Institute of Allergy and Infectious Diseases, Bethesda, Md.

Dwight L. Anderson (1974)
David Baltimore (1972)
Marcel A. Baluda (1972)
Allan M. Campbell (1972)
Purnell Choppin (1974)
Eugene H. Cota-Robles (1973)
Vittorio Defendi (1973)
Walter Doerfler (1974)
Richard M. Franklin (1973)
Robert M. Friedman (1973)
Harold S. Ginsberg (1973)
Marc Girard (1974)
Angus Graham (1972)
D. MacDonald Green (1974)
Klaus Hummeler (1973)
Paul J. Kaesberg (1973)
Albert S. Kaplan (1973)
Edwin D. Kilbourne (1973)
David W. Kingsbury (1973)
Lloyd M. Kozloff (1976)
Margaret Lieb (1973)
Jean Lindenmann (1973)
Royce Z. Lockart, Jr. (1972)
Christopher K. Mathews (1973)
Bernard Moss (1974)
Elmer R. Pfefferkorn (1974)
Lennart Philipson (1973)
Fred Rapp (1972)
Bernard Roizman (1973)
Aaron J. Shatkin (1972)
Robert W. Simpson (1973)
Donald F. Summers (1973)
Howard M. Temin (1973)
Peter Vogt (1973)
John S. Wiberg (1973)
Julius Youngner (1973)

Robert A. Day, *Managing Editor, 1913 I St., N.W., Washington, D.C. 20006*

EX OFFICIO

R. G. E. Murray, *President* (1972–1973)

L. Leon Campbell, *Vice-President* (1972–1973)

Donald E. Shay, *Secretary*

T. J. Carski, *Treasurer*

The *Journal of Virology*, a publication of the American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006, is devoted to the dissemination of fundamental knowledge concerning viruses of bacteria, plants, and animals. Investigators are invited to submit reports of original research in all areas of basic virology, including biochemistry, biophysics, genetics, immunology, morphology, and physiology. The *Journal* is issued monthly, two volumes per year. The subscription price is $40 (foreign, $41) per year; single copies are $4.00 (foreign, $4.25). Members of the American Society for Microbiology may receive the *Journal* as part of their dues. Correspondence relating to subscriptions, reprints, defective copies, availability of back issues, lost or late proofs, disposition of submitted manuscripts and general editorial matters should be directed to the ASM Publications Office, 1913 I St., N.W., Washington, D.C. 20006 (area 202 833-9416). Correspondence from ASM members relating to membership dues, member subscriptions, changes of address, incorrect address, incorrect journals, etc., should be directed to the Executive Secretary, American Society for Microbiology, 1913 I St., N.W., Washington, D.C. 20006. Published monthly by the ASM at 428 E. Preston St., Baltimore, Md. 21202.

Second-class postage paid at Baltimore, Md. 21202, and at additional mailing offices
Made in the U.S.A.

Copyright © 1972, American Society for Microbiology.
All Rights Reserved.

Volume 10 **Contents for July** Number 1

Animal Viruses

Adenovirus-Associated Virus Multiplication. VII. Helper Requirement for Viral Deoxyribonucleic Acid and Ribonucleic Acid Synthesis. J. A. ROSE AND F. KOCZOT . . 1
Adenovirus-Associated Virus Multiplication. VIII. Analysis of In Vivo Transcription Induced by Complete or Partial Helper Viruses. BARRIE J. CARTER AND JAMES A. ROSE 9
Role of Subunits of 60 to 70*S* Avian Tumor Virus Ribonucleic Acid in Its Template Activity for the Viral Deoxyribonucleic Acid Polymerase. ELI CANAANI AND PETER DUESBERG 23
Biosynthetic Properties of a Polyoma Nucleoprotein Complex: Evidence for Replication Sites. MELVIN H. GREEN 32
A_2 (N2) Neuraminidase of the X-7 Influenza Virus Recombinant: Determination of Molecular Size and Subunit Composition of the Active Unit. D. J. BUCHER AND E. D. KILBOURNE 60
Properties of Somatic Cell Hybrids Between Mouse Cells and Simian Virus 40-Transformed Rat Cells. J. VAN DER NOORDAA, ANNE VAN HAAGEN, J. M. M. WALBOOMERS, AND H. VAN SOMEREN 67
Characterization of the Polypeptides Formed in Response to Encephalomyocarditis Virus Ribonucleic Acid in a Cell-Free System from Mouse Ascites Tumor Cells. IAN M. KERR, R. E. BROWN, AND DOROTHY R. TOVELL 73
Cell Cycle-Dependent Activation of Rous Sarcoma Virus-Infected Stationary Chicken Cells: Avian Leukosis Virus Group-Specific Antigens and Ribonucleic Acid. ERIC H. HUMPHRIES AND HOWARD M. TEMIN 82
In Vivo and In Vitro Synthesis of Human Rhinovirus Type 2 Ribonucleic Acid. F. H. YIN AND E. KNIGHT, JR 93
Immune Electron Microscopy of Rhinoviruses. ALBERT Z. KAPIKIAN, JUNE D. ALMEIDA, AND E. J. STOTT 142
Further Studies of a Simian Virus 40-Like Virus Isolated from Human Brain. L. P. WEINER, R. M. HERNDON, O. NARAYAN, AND R. T. JOHNSON 147
Rescue of Rous Sarcoma Virus from Rous Sarcoma Virus-Transformed Mammalian Cells. JOHN M. COFFIN 153
Conformational Studies of Australia Antigen by Optical Rotatory Dispersion and Circular Dichroism. NORIYOSHI SUKENO, RYOICHI SHIRACHI, HIROYUKI SHIRAISHI, AND NAKAO ISHIDA 157
Temperature-Dependent Inhibition of Fusion from Without. WILLIAM F. GALLAHER AND MICHAEL A. BRATT 159

Bacterial Viruses

Specific Fragments of øX174 Deoxyribonucleic Acid Produced by a Restriction Enzyme from *Haemophilus aegyptius*, Endonuclease Z. JUNE H. MIDDLETON, MARSHALL H. EDGELL, AND CLYDE A. HUTCHISON III 42
Bacteriophage SP82G Inhibition of an Intracellular Deoxyribonucleic Acid Inactivation Process in *Bacillus subtilis*. WILLIAM T. MCALLISTER AND D. MACDONALD GREEN . . 51
Stability of Cytosine-Containing Deoxyribonucleic Acid After Infection by Certain T4 *r*II-D Deletion Mutants. ROBERT BRUNER, ARTHUR SOUTHER, AND SIDNEY SUGGS . . 88
Direction of Translation and Size of Bacteriophage øX174 Cistrons. ROBERT M. BENBOW, ROBERT F. MAYOL, JOANNA C. PICCHI, AND ROBERT L. SINSHEIMER 99
Replicative Intermediates of Bacteriophage T7 Deoxyribonucleic Acid. MELVIN S. CENTER 115
Nuclear Disruption After Infection of *Escherichia coli* with a Bacteriophage T4 Mutant Unable to Induce Endonuclease II. D. PETER SNUSTAD, HUBER R. WARNER, KATHLEEN A. PARSON, AND DWIGHT L. ANDERSON 124
Characterization of Bacteriophage S13 *su*N15 Single-Strand and Replicative-Form Deoxyribonucleic Acid. J. H. SPENCER, R. ČERNÝ, E. ČERNÁ, AND A. D. DELANEY . . 134

Morphology and Nucleic Acid Composition of the *Azotobacter* Bacteriophages. JAMES KNOVICKA, LEODOCIA POPE, AND ORVILLE WYSS 150
Host-Virus Interactions in *Escherichia coli*: Effect of Stationary Phase on Viral Release from MS2-Infected Bacteria. C. PROPST RICCIUTI 162

Plant Viruses

Transfection in *Agrobacterium tumefaciens*. VICTOR J. MILANI AND GARY T. HEBERLEIN . 17

Volume 10 Contents for August Number 2

Animal Viruses

Induction of Deoxyribonucleic Acid Synthesis and the Oncogenicity of Marek's Disease Virus. LUCY F. LEE 167
Sensitivity of Ribonucleic Acid and Deoxyribonucleic Acid Viruses to Different Species of Interferon in Cell Cultures. JULIUS S. YOUNGNER, HARSHAD R. THACORE, AND MARION E. KELLY 171
Isolation and Characterization of Simian Virus 40 Ribonucleic Acid. R. A. WEINBERG, S. O. WARNAAR, AND E. WINOCOUR 193
Virus-Associated Nucleases: Location and Properties of Deoxyribonucleases and Ribonucleases in Purified Frog Virus 3. H. S. KANG AND B. R. MCAUSLAN 202
Studies on the Mechanism of Enhancement of Human Adenovirus Infection in Monkey Cells by Simian Virus 40. STEPHEN G. BAUM, MARSHALL S. HORWITZ, AND JACOB V. MAIZEL, JR. 211
Synthesis of Viral Ribonucleic Acid During Restricted Adenovirus Infection. ROBERT I. FOX AND STEPHEN G. BAUM 220
Properties of Maedi Nucleic Acid and the Presence of Ribonucleic Acid- and Deoxyribonucleic Acid-Dependent Deoxyribonucleic Acid Polymerase in the Virions. FU HAI LIN AND HALLDOR THORMAR 228
Dissociation of Vesicular Stomatitis Virus and Relation of the Virion Proteins to the Viral Transcriptase. D. H. L. BISHOP AND POLLY ROY 234
Ribonucleic Acid Species of Intracellular Nucleocapsids and Released Virions of Vesicular Stomatitis Virus. MICHAEL P. KILEY AND ROBERT R. WAGNER 244
Model for Vesicular Stomatitis Virus. B. CARTWRIGHT, C. J. SMALE, F. BROWN, AND R. HULL 256
Study of Some Stages of Poliovirus Morphogenesis in MiO Cells. Y. GHENDON, E. YAKOBSON, AND ANGELIKA MIKHEJEVA 261
Temperature-Dependent Transformation of Cells Infected with a Mutant of Bryan Rous Sarcoma Virus. JOHN P. BADER 267
Antigenic Relationship Between the Herpesviruses of Infectious Bovine Rhinotracheitis, Marek's Disease, and Burkitt's Lymphoma. D. L. EVANS, J. W. BARNETT, J. M. BOWEN, AND L. DMOCHOWSKI 277
Rescue of Epstein-Barr Virus from Somatic Cell Hybrids of Burkitt Lymphoblastoid Cells. RONALD GLASER AND FRED RAPP 288
Dissociation and Reconstitution of the Transcriptase and Template Activities of Vesicular Stomatitis B and T Virions. SUZANNE U. EMERSON AND ROBERT R. WAGNER .. 297
Adenylate-Rich Sequences in Sendai Virus Transcripts from Infected Cells. C. PRIDGEN AND D. W. KINGSBURY 314

Bacterial Viruses

Effect of Rifampin on the Growth of Bacteriophage T5. L. DAVID BECKMAN, PHILIP WITONSKY, AND D. J. MCCORQUODALE 179
Transcription After Bacteriophage SPP1 Infection in *Bacillus subtilis*. G. MILANESI AND G. CASSANI 187
Defective Deoxyribonucleic Acid Replication of T4rII Bacteriophage in Lambda-Lysogenic Host Cells. RAYMONDE SZARGEL AND CHANNA SHALITIN 310

Lysogenic Conversion in *Staphylococcus aureus* to Leucocidin Production. JAN C. M. VAN DER VIJVER, MARY VAN ES-BOON, AND MARC F. MICHEL 318

Volume 10 Contents for September Number 3

Animal Viruses

Deoxyribonucleic Acid Polymerase Activities in Normal and Leukovirus-Infected Chicken Embryo Cells. A. WEISSBACH, A. BOLDEN, R. MULLER, H. HANAFUSA, AND T. HANAFUSA 321
Selection and Preliminary Characterization of Temperature-Sensitive Mutants of Type 5 Adenovirus. MARCIA J. ENSINGER AND HAROLD S. GINSBERG 328
Polyoma Pseudovirions. I. Sequence of Events in Primary Mouse Embryo Cells Leading to Pseudovirus Production. DAVID B. YELTON AND H. VASKEN APOSHIAN 340
Capsid Polypeptides of Mouse Elberfeld Virus. I. Amino Acid Compositions and Molar Ratios in the Virion. C. MARTIN STOLTZFUS AND ROLAND RUECKERT 347
Demonstration of Infectious Deoxyribonucleic Acid in Transformed Cells. I. Recovery of Simian Virus 40 from Yielder and Nonyielder Transformed Cells. VIRGINIA A. L. BOYD AND JANET S. BUTEL 399
Characterization of an Endonuclease Associated with Simian Virus 40 Virions. WILLIAM R. KIDWELL, REIN SARAL, ROBERT G. MARTIN, AND HARVEY L. OZER 410
Protein Kinase and Specific Phosphate Acceptor Proteins Associated with Vaccinia Virus Cores. ENZO PAOLETTI AND BERNARD MOSS 417
Fate of Infecting Simian Virus 40-Deoxyribonucleic Acid in Nonpermissive Cells: Integration into Host Deoxyribonucleic Acid. CAROLYN J. COLLINS AND GERHARD SAUER 425
Fatty Chains of Different Lipid Classes of Semliki Forest Virus and Host Cell Membranes. RAILI LAINE, MAIJA-LIISA KETTUNEN, CARL G. GAHMBERG, LEEVI KÄÄRIÄRNEN, AND OSSI RENKONEN 433
Reverse Transcriptase-Containing Particles Induced in Rous Sarcoma Virus-Transformed Rat Cells by Arginine Deprivation. MOSHE KOTLER, EYNAT WEINBERG, OSNAT HASPEL, AND YECHIEL BECKER 439
Immunological Studies on Viral Polypeptide Synthesis in Cells Replicating Murine Sarcoma-Leukemia Virus. G. SHANMUGAM, GIANCARLO VECCHIO, DOMENICA ATTARDI, AND MAURICE GREEN 447
Virus Deoxyribonucleic Acid Sequences in Subdiploid and Subtetraploid Revertants of Polyoma-Transformed Cells. MOSHE SHANI, ZELIG RABINOWITZ, AND LEO SACHS 456
Specific Initiation Site for Simian Virus 40 Deoxyribonucleic Acid Replication. MARILYN M. THOREN, EDWIN D. SEBRING, AND NORMAN P. SALZMAN 462
Biophysical and Biochemical Heterogeneity of Purified Hepatitis B Antigen. G. R. DREESMAN, F. B. HOLLINGER, J. R. SURIANO, R. S. FUJIOKA, J. P. BRUNSCHWIG, AND J. L. MELNICK 469
Theta Particles: a Structure Found in Hamster Sarcoma Virus. ANTHONY P. ALBINO, ETIENNE DEHARVEN, AND F. KINGSLEY SANDERS 477
Origin and Direction of Simian Virus 40 Deoxyribonucleic Acid Replication. GEORGE C. FAREED, CLAUDE F. GARON, AND NORMAN P. SALZMAN 484
Specific Membranous Structures Associated with the Replication of Group A Arboviruses. PHILIP M. GRIMLEY, JUDITH G. LEVIN, IRENE K. BEREZESKY, AND ROBERT M. FRIEDMAN 492
Membrane-Associated Replication Complex in Arbovirus Infection. ROBERT M. FRIEDMAN, JUDITH G. LEVIN, PHILIP M. GRIMLEY, AND IRENE K. BEREZESKY 504
Morphology and Morphogenesis of Sindbis Virus as Seen with Freeze-Etching Techniques. DENNIS T. BROWN, MARILYNN R. F. WAITE, AND ELMER R. PFEFFERKORN .. 524
Inhibition of Sindbis Virus Release by Media of Low Ionic Strength: an Electron Microscope Study. MARILYNN R. F. WAITE, DENNIS T. BROWN, AND ELMER R. PFEFFERKORN 537

Transfer Ribonucleic Acid Nucleotidyltransferase and Transfer Ribonucleic Acid in Sendai Virions. DANIEL KOLAKOFSKY 555

Bacterial Viruses

Plasmid-Controlled Variation in the Content of Methylated Bases in Bacteriophage Lambda Deoxyribonucleic Acid. STANLEY HATTMAN 356
Filamentous Bacterial Viruses. IV. Fate of the Infecting Parental Single-Stranded Deoxyribonucleic Acid. B. Y. TSENG, B. HOHN, AND D. A. MARVIN 362
Filamentous Bacterial Viruses. V. Asymmetric Replication of fd Duplex Deoxyribonucleic Acid. B. Y. TSENG AND D. A. MARVIN 371
Filamentous Bacterial Viruses. VI. Role of fd Gene 2 in Deoxyribonucleic Acid Replication. B. Y. TSENG AND D. A. MARVIN 384
Filamentous Bacterial Viruses. VII. Inhibition of fd Deoxyribonucleic Acid Synthesis After a Temperature Jump into Protein-Synthesis Inhibitors. B. Y. TSENG AND D. A. MARVIN 392
Isolation and Preliminary Characterization of Bacteriophages for *Bdellovibrio bacteriovorus*. MARY ALTHAUSER, WILLIAM A. SAMSONOFF, CAROL ANDERSON, AND S. F. CONTI 516
Bacteriophage T4 Head Morphogenesis. IV. Comparison of Gene 16-, 17-, and 49-Defective Head Structures. RONALD B. LUFTIG AND CAROL GANZ 545
Change in Methylation of *Salmonella* Bacteriophage P3 Deoxyribonucleic Acid with Host-Controlled Modification by *Escherichia coli*. ROBERT L. NUTTER, LEONARD R. BULLAS, BENJAMIN S. SIAPCO, AND CLARK A. PEARSON 560

Volume 10 **Contents for October** **Number 4**

Animal Viruses

Separation of the Herpesvirus Deoxyribonucleic Acid Duplex into Unique Fragments and Intact Strand on Sedimentation in Alkaline Gradients. NIZA FRENKEL AND BERNARD ROIZMAN 565
Growth Characterization of Kilham Rat Virus and Its Effect on Cellular Macromolecular Synthesis. LOIS ANN SALZMAN, WESLEY L. WHITE, AND LOUESE MCKERLIE 573
Effect of Vesicular Stomatitis Virus Infection on the Histocompatibility Antigen of L Cells. TOBY T. HECHT AND DONALD F. SUMMERS 578
Replication of the Parvovirus MVM. I. Dependence of Virus Multiplication and Plaque Formation on Cell Growth. PETER TATTERSALL 586
Simian Virus 40 Deoxyribonucleic Acid Synthesis: the Viral Replicon. PETER TEGTMEYER 591
Simian Virus 40 Deoxyribonucleic Acid Synthesis: Analysis by Gel Electrophoresis. PETER TEGTMEYER AND FRANCISCO MACASAET 599
Mutant of Vesicular Stomatitis Virus Which Allows Deoxyribonucleic Acid Synthesis and Division in Cells Synthesizing Viral Ribonucleic Acid. A. J. FARMILO AND C. P. STANNERS 605
Control of Interferon Synthesis: Effect of Diethylaminoethyl-Dextran on Induction by Polyinosinic-Polycytidylic Acid. JAN VILČEK, SANDRA L. BARMAK, AND EDWARD A. HAVELL 614
Covalent Linkage Between Ribonucleic Acid Primer and Deoxyribonucleic Acid Product of the Avian Myeloblastosis Virus Deoxyribonucleic Acid Polymerase. INDER M. VERMA, NORA L. MEUTH, AND DAVID BALTIMORE 622
Reovirus Replicase-Directed Synthesis of Double-Stranded Ribonucleic Acid. S. SAKUMA AND Y. WATANABE 628
Isolation and Preliminary Characterization of Temperature-Sensitive Mutants of Influenza Virus. A. SUGIURA, K. TOBITA, AND EDWIN D. KILBOURNE 639
Virus-Specific Ribonucleic Acid in the Nucleus and Cytoplasm of Rat Embryo Cells Transformed by Adenovirus Type 2. KOICHIRO SHIMADA, KEI FUJINAGA, SEIJI HAMA, KENJI SEKIKAWA, AND YOHEI ITO 648

Isolation of Temperature-Sensitive Mutants of Murine Sarcoma Virus. EDWARD M. SCOLNICK, JOHN R. STEPHENSON, AND STUART A. AARONSON 653
Structural Proteins of Pichinde Virus. BLANCA A. RAMOS, RICHARD J. COURTNEY, AND WILLIAM E. RAWLS 661
Transcription of the Herpes Simplex Virus Genome in Human Cells. EDWARD K. WAGNER, RONALD I. SWANSTROM, AND MARVIN G. STAFFORD 675
Adenylate-Rich Sequences in Vesicular Stomatitis Virus Messenger Ribonucleic Acid. ELLIE EHRENFELD AND DONALD F. SUMMERS 683
Transcription of the Influenza Ribonucleic Acid Genome by a Virion Polymerase. III. Completeness of the Transcription Process. DAVID H. L. BISHOP, POLLY ROY, WILLIAM J. BEAN, JR., AND ROBERT W. SIMPSON 689
Transcription by Infectious Subviral Particles of Reovirus. A. J. SHATKIN AND A. J. LAFIANDRA 698
Recovery of Cell-Bound Interferon. WILLIAM E. STEWART II, ERIK DE CLERCQ, AND PIERRE DE SOMER 707
Studies on Vaccinia Virus-Directed Deoxyribonucleic Acid Polymerase. R. V. CITARELLA, R. MULLER, A. SCHLABACH, AND A. WEISSBACH 721
Major Group-Specific Protein of Rat Type C Viruses. S. OROSZLAN, D. BOVA, R. J. HUEBNER, AND R. V. GILDEN 746
Cleavage of Viral Precursor Proteins In Vivo and In Vitro. B. D. KORANT 751
Nonviral Microbodies with Viral Antigenicity Produced in Cytomegalovirus-Infected Cells. JOHN E. CRAIGHEAD, ROBERT E. KANICH, AND JUNE D. ALMEIDA 766
Structural Roles of Polyoma Virus Proteins. THEODORE FRIEDMANN AND DENISE DAVID 776
Structure of the Bluetongue Virus Capsid. D. W. VERWOERD, H. J. ELS, ETHEL-MICHÉLE DE VILLIERS, AND H. HUISMANS 783
Structure of the Ribonucleoprotein of Influenza Virus. RICHARD W. COMPANS, JEAN CONTENT, AND PETER H. DUESBERG 795
Macromolecular Content of Inclusions Produced by a Canine Adenovirus. MAHMOOD S. SHAHRABADI, K. L. ROY, AND T. YAMAMOTO 801
Electron Microscopical and Biochemical Characterization of Infectious Pancreatic Necrosis Virus. RUSSELL K. KELLY AND PHILIP C. LOH 824
Location of Ferritin-Labeled Concanavalin A Binding to Influenza Virus and Tumor Cell Surfaces. PAUL A. KLEIN AND W. R. ADAMS 844
Denaturation Pattern of the Deoxyribonucleic Acid from Chicken Embryo Lethal Orphan Virus. H. BANFIELD YOUNGHUSBAND AND A. J. D. BELLETT 855
Deoxyribonucleic Acid-Dependent Nucleoside Phosphohydrolase Activity in Purified Vaccinia Virus. ENZO PAOLETTI AND BERNARD MOSS 866
Ribonucleic Acid Synthesis in Cells Infected with Herpes Simplex Virus. VI. Polyadenylic Acid Sequences in Viral Messenger Ribonucleic Acid. STEVEN L. BACHENHEIMER AND BERNARD ROIZMAN 875
Inhibition of Cleavage of Large Poliovirus-Specific Precursor Proteins in Infected HeLa Cells by Inhibitors of Proteolytic Enzymes. DONALD F. SUMMERS, ELLIOTT N. SHAW, MARGARET L. STEWART, AND JACOB V. MAIZEL, JR. 880
Reversible Inactivation of the Deoxyribonucleic Acid Polymerase of Rauscher Leukemia Virus. STEVEN R. TRONICK, EDWARD M. SCOLNICK, AND WADE P. PARKS 885

Bacterial Viruses

Deoxyribonucleic Acid Polymerase Activity in a Deoxyribonucleic Acid Polymerase I-Deficient Mutant of *Bacillus subtilis* Infected with Temperate Bacteriophage SPO2. LARS RUTBERG AND RICHARD W. ARMENTROUT 658
Behavior of Coliphage Lambda in *Shigella flexneri* 2a. P. GEMSKI, JR., J. A. ALEXEICHIK, AND L. S. BARON 668
Effect of Bacteriophage Ghost Infection on Protein Synthesis in *Escherichia coli*. ISAMU FUKUMA AND AKIRA KAJI 713
Deoxyribonucleic Acid Repair in Bacteriophage T4: Observations on the Roles of the *x* and *v* Genes and of Host Factors. KRISTIEN MORTELMANS AND ERROL C. FRIEDBERG 730
Isolation and Characterization of a Lysogenic Strain of *Nocardia erythropolis*. JENNIFER K. CROCKETT AND GEORGE H. BROWNELL 737

Isolation and Properties of *rex*⁻ Mutants of Bacteriophage Lambda. GARY N. GUSSIN AND VICTORIA PETERSON 760
Isolation and Characterization of Bacteriophage T4 Base Plates. B. F. POGLAZOV, L. P. RODIKOVA, AND R. A. SULTANOVA 810
Host-Bacteriophage Interaction in *Agrobacterium tumefaciens*. I. Characterization of Bacteriophage R4 and Physiological Changes in the Infected Host Cell. RICHARD ADLER AND CHRISTINE POOTJES 816
Role of F Pili in the Penetration of Bacteriophage f1. ANN JACOBSON 835
Defective Concatemer Formation in Cells Infected with Deoxyribonucleic Acid-Delay Mutants of Bacteriophage T4. Y. NAOT AND C. SHALITIN 858
Micrococcal Nuclease Treatment of Bacteriophage Heads Alters the Right-Hand Cohesive End of Lambda Deoxyribonucleic Acid. FRANCES D. GILLIN AND VERNON C. BODE 863
Effect of Zn^{2+} on the Adsorption of Male-Specific Filamentous Deoxyribonucleic Acid and Isometric Ribonucleic Acid Bacteriophages. JONATHAN T. OU AND THOMAS F. ANDERSON 869
Exclusion of Bacteriophages by T2 Ghosts. ROBERT FABRICANT AND DAVID KENNELL 872

Volume 10 Contents for November Number 5

Animal Viruses

Study of the Transcription and the Replication of Vesicular Stomatitis Virus by Using Temperature-Sensitive Mutants. CHRISTIANE PRINTZ-ANÉ, ARLETTE COMBARD, AND CLAIRE MARTINET 889
Cellular Alteration by Interferon: a Virus-Free System for Assaying Interferon. WILLIAM E. STEWART II, ERIK DE CLERCQ, AND PIERRE DE SOMER 896
Isolation and Characterization of Adenovirus Messenger Ribonucleic Acid in Productive Infection. UNO LINDBERG, TORGNY PERSSON, AND LENNART PHILIPSON 909
Formation of Sindbis Virus Proteins: Identification of a Precursor for One of the Envelope Proteins. SONDRA SCHLESINGER AND MILTON J. SCHLESINGER 925
Activation of Guinea Pig Herpesvirus Antigen in Leukemic Lymphoblasts of Guinea Pig. D. P. NAYAK 933
Incorporation of In Vitro Synthesized Reovirus Double-Stranded Ribonucleic Acid into Virus Corelike Particles. S. SAKUMA AND Y. WATANABE 943
Serological Analysis of the Deoxyribonucleic Acid Polymerase of Avian Oncornaviruses. I. Preparation and Characterization of Monospecific Antiserum with Purified Deoxyribonucleic Acid Polymerase. K. F. WATSON, R. C. NOWINSKI, A. YANIV, AND S. SPIEGELMAN 951
Serological Analysis of the Deoxyribonucleic Acid Polymerase of Avian Oncornaviruses. II. Comparison of Avian Deoxyribonucleic Acid Polymerases. ROBERT C. NOWINSKI, K. F. WATSON, A. YANIV, AND S. SPIEGELMAN 959
Comparison of the 3′ Termini of Discrete Segments of the Double-Stranded Ribonucleic Acid Genomes of Cytoplasmic Polyhedrosis Virus, Wound Tumor Virus, and Reovirus. LEON J. LEWANDOWSKI AND S. H. LEPPLA 965
Mechanism of Mengo Virus-Induced Cell Injury in L Cells: Use of Inhibitors of Protein Synthesis to Dissociate Virus-Specific Events. F. D. COLLINS AND W. K. ROBERTS 969
Structural Proteins of Simian Virus 40: Phosphoproteins. K. B. TAN AND F. SOKOL 985
Latency of Human Measles Virus in Hamster Cells. PAUL KNIGHT, RONALD DUFF, AND FRED RAPP 995
Distribution of Deoxyribonucleic Acid Complementary to the Ribonucleic Acid of of Avian Myeloblastosis Virus in Tissues of Normal and Tumor-Bearing Chickens. M. A. BALUDA AND W. N. DROHAN 1002
Properties of a Ribonucleoprotein Particle Isolated from Nonidet P-40-Treated Rous Sarcoma Virus. NANCY L. DAVIS AND ROLAND R. RUECKERT 1010

Isolation of a Herpes Simplex Virus-Specific Antigenic Fraction Which Stimulates the Production of Neutralizing Antibody. GARY H. COHEN, MANUEL PONCE DE LEON, AND CHRIS NICHOLS 1021
Sendai Virus-Induced Transcriptase from Infected Cells: Polypeptides in the Transcriptive Complex. H. O. STONE, D. W. KINGSBURY, AND R. W. DARLINGTON 1037
Proteins Specified by Herpes Simplex Virus. VIII. Characterization and Composition of Multiple Capsid Forms of Subtypes 1 and 2. WADE GIBSON AND BERNARD ROIZMAN 1044
Comparison of the Structure and Polypeptide Composition of Three Double-Stranded Ribonucleic Acid-Containing Viruses (Diplornaviruses): Cytoplasmic Polyhedrosis Virus, Wound Tumor Virus, and Reovirus. L. J. LEWANDOWSKI, AND B. L. TRAYNOR 1053
Arrangement of Herpesvirus Deoxyribonucleic Acid in the Core. D. FURLONG, H. SWIFT, AND B. ROIZMAN 1071
Visualization by Immune Electron Microscopy of a 27-nm Particle Associated with Acute Infectious Nonbacterial Gastroenteritis. ALBERT Z. KAPIKIAN, RICHARD G. WYATT, RAPHAEL DOLIN, THOMAS S. THORNHILL, ANTHONY R. KALICA, AND ROBERT M. CHANOCK 1075
Physical Properties of Lactic Dehydrogenase-Elevating Virus and Its Ribonucleic Acid. MARGO B. DARNELL AND PETER G. W. PLAGEMANN 1082
Inhibition by α-Amanitin of Simian Virus 40-Specific Ribonucleic Acid Synthesis in Nuclei of Infected Monkey Cells. ARLENE HILDEBRANDT JACKSON AND BILL SUGDEN 1086

Bacterial Viruses

Ribonucleotides Covalently Linked to Deoxyribonucleic Acid in T4 Bacteriophage. J. F. SPEYER, J. CHAO, AND L. CHAO 902
Association of Replicative T4 Deoxyribonucleic Acid and Bacterial Membranes. ROBERT C. MILLER, JR. 920
Methylation Pattern of Lambda Deoxyribonucleic Acid. CECILIA HIDALGO AND HOWARD A. NASH 937
Degradation of *Escherichia coli* Chromosome After Infection by Bacteriophage T4: Role of Bacteriophage Gene D2a. ARTHUR SOUTHER, ROBERT BRUNER, AND JOEL ELLIOTT 979
Development of Bacteriophage Alpha. II. Dependence on the Host Ribonucleic Acid Polymerase. GARY F. STRNISTE AND WILLIAM D. TAYLOR 1031

Volume 10 **Contents for December** **Number 6**

Animal Viruses

Transient Inhibition of Polyoma Virus Synthesis by Sendai Virus (Parainfluenza I). I Demonstration and Nature of the Inhibition by Inactivated Virus. GARY L. SMITH AND RICHARD A. CONSIGLI 1091
Transient Inhibition of Polyoma Virus Synthesis by Sendai Virus (Parainfluenza I). II. Mechanism of the Interference by Inactivated Virus. GARY L. SMITH AND RICHARD A. CONSIGLI 1098
Transcription and Transport of Virus-Specific Ribonucleic Acids in African Green Monkey Kidney Cells Abortively Infected with Type 2 Adenovirus. JOSEPH J. LUCAS AND HAROLD S. GINSBERG 1109
Adenovirus-Associated Virus Multiplication. IX. Extent of Transcription of the Viral Genome In Vivo. BARRIE J. CARTER, GEORGE KHOURY, AND JAMES A. ROSE 1118
Procedure for the Preparation of Milligram Quantities of Adenovirus Messenger Ribonucleic Acid. SAUMYA BHADURI, HESCHEL J. RASKAS, AND MAURICE GREEN 1126
Temperature-Sensitive Mutants of Vesicular Stomatitis Virus: In Vitro Studies of Virion-Associated Polymerase. J. E. CAIRNS, A. F. HOLLOWAY, AND D. V. CORMACK 1130

Ribonuclease H: a Ubiquitous Activity in Virions of Ribonucleic Acid Tumor Viruses. DUANE P. GRANDGENETT, GARY F. GERARD, AND MAURICE GREEN 1136
Thermosensitive Block of the Sabin Strain of Poliovirus Type 1. MARC FISZMAN, MAX REYNIER, DANIELLE BUCCHINI, AND MARC GIRARD 1143
Cell Fusion by Canine Distemper Virus-Infected Cells. ANNE M. RANKIN, LINDA E. FISHER, AND ROBERT H. BUSSELL 1179
Mechanism of Interferon Action: Inhibition of Viral Messenger Ribonucleic Acid Translation in L-Cell Extracts. R. M. FRIEDMAN, D. H. METZ, R. M. ESTEBAN, D. R. TOVELL, L. A. BALL, AND I. M. KERR 1184
Wild-Type Gross Leukemia Virus: Classification of Soluble Antigens (GSA). TADAO AOKI, RONALD B. HERBERMAN, PATRICIA A. JOHNSON, MARGARET LIU, AND MACIE M. STURM 1208
Isolation and Characterization of Subacute Sclerosing Panencephalitis Virus Nucleocapsids. JEN YEH AND YUZO IWASAKI 1220
Classification of Rhabdovirus Proteins: a Proposal. R. R. WAGNER, L. PREVEC, F. BROWN, D. F. SUMMERS, F. SOKOL, AND R. MACLEOD 1228
The Glycoprotein of Vesicular Stomatitis Virus Is the Antigen That Gives Rise to and Reacts with Neutralizing Antibody. J. MICHAEL KELLEY, SUZANNE U. EMERSON, AND ROBERT R. WAGNER 1231
Density Heterogeneity of Simian Virus 40 Ribonucleic Acid Late After Infection of Permissive Cells. ALLAN H. FRIED 1236

Bacterial Viruses

Binding of Bacteriophage P22 Tail Parts to Cells. VANCE ISRAEL, HOWARD ROSEN, AND MYRON LEVINE 1152
Host- and Phage-Mediated Repair of Radiation Damage in Bacteriophage T4. SUSAN S. WALLACE AND ROBERT J. MELAMEDE 1159
Transcription During the Development of Bacteriophage ϕ29: Production of Host- and ϕ29-Specific Ribonucleic Acid. CHARLES F. SCHACHTELE, CAROL V. DE SAIN, LOUISE A. HAWLEY, AND DWIGHT L. ANDERSON 1170
Polypeptide Synthesis by Extracts from *Escherichia coli* Treated with T2 Ghosts. KENNETH NUGENT AND DAVID KENNELL 1199
Asymmetric Transcription of Bacteriophage Mu-1. ERNESTO G. BADE 1205
Thymidine Triphosphate Nucleotidohydrolase and Deoxyuridylate Hydroxymethylase Induced by Mutants of *Bacillus subtilis* Bacteriophage SP82G. ALAN R. PRICE, LINDA F. DUNHAM, AND ROBERT L. WALKER 1240

AUTHOR INDEX
VOLUME 10

Aaronson, Stuart A., 653
Adams, W. R., 844
Adler, Richard, 816
Albino, Anthony P., 477
Alexeichik, J. A., 668
Almeida, June D., 142, 766
Althauser, Mary, 516
Anderson, Carol, 516
Anderson, Dwight L., 124, 1170
Anderson, Thomas F., 869
Aoki, Tadao, 1208
Aposhian, H. Vasken, 340
Armentrout, Richard W., 658
Attardi, Domenica, 447

Bachenheimer, Steven L., 875
Bade, Ernesto G., 1205
Bader, John P., 267
Ball, L. A., 1184
Baltimore, David, 622
Baluda, M. A., 1002
Barmak, Sandra L., 614
Barnett, J. W., 277
Baron, L. S., 668
Baum, Stephen G., 211, 220
Bean, William J., Jr., 689
Becker, Yechiel, 439
Beckman, L. David, 179
Bellett, A. J. D., 855
Benbow, Robert M., 99
Berezesky, Irene K., 492, 504
Bhaduri, Saumya, 1126
Bishop, D. H. L., 234, 689
Bode, Vernon C., 863
Bolden, A., 321
Bova, D., 746
Bowen, J. M., 277
Boyd, Virginia A. L., 399
Bratt, Michael A., 159
Brown, Dennis T., 524, 537
Brown, F., 256, 1228
Brown, R. E., 73
Brownell, George H., 737
Bruner, Robert, 88, 979
Brunschwig, J. P., 469
Bucchini, Danielle, 1143
Bucher, D. J., 60
Bullas, Leonard R., 560
Bussell, Robert H., 1179
Butel, Janet S., 399

Cairns, J. E., 1130
Canaani, Eli, 23
Carter, Barrie J., 9, 1118
Cassani, G., 187
Center, Melvin S., 115
Černá, E., 134
Černý, R., 134
Chanock, Robert M., 1075
Chao, J., 902
Chao, L., 902
Citarella, R. V., 721
Coffin, John M., 153
Cohen, Gary H., 1021
Collins, Carolyn J., 425
Collins, F. D., 969
Combard, Arlette, 889
Compans, Richard W., 795
Consigli, Richard A., 1091, 1098
Content, Jean, 795
Conti, S. F., 516
Cormack, D. V., 1130
Courtney, Richard J., 661
Craighead, John E., 766
Crockett, Jennifer K., 737

Darlington, R. W., 1037
Darnell, Margo B., 1082
David, Denise, 776
Davis, Nancy L., 1010
De Clercq, Erik, 707, 896
DeHarven, Etienne, 477
Delaney, A. D., 134
De Sain, Carol V., 1170
De Somer, Pierre, 707, 896
De Villiers, Ethel-Michéle, 783
Dmochowski, L., 277
Dolin, Raphael, 1075
Dreeman, G. R., 469
Drohan, W. N., 1002
Duesberg, Peter H., 23, 795
Duff, Ronald, 995
Dunham, Linda F., 1240

Edgell, Marshall H., 42
Ehrenfeld, Ellie, 683
Elliott, Joel, 979
Els, H. J., 783
Emerson, Suzanne U., 297, 1231
Ensinger, Marcia J., 328
Esteban, R. M., 1184
Evans, D. L., 277

Fabricant, Robert, 872
Fareed, George C., 484
Farmilo, A. J., 605
Fisher, Linda E., 1179
Fiszman, Marc, 1143
Fox, Robert I., 220
Frenkel, Niza, 565
Fried, Allan H., 1236
Friedberg, Errol C., 730
Friedman, Robert M., 492, 504
Friedman, R. M., 1184
Friedmann, Theodore, 776
Fujinaga, Kei, 648
Fujioka, R. S., 469
Fukuma, Isamu, 713
Furlong, D., 1071

Gahmberg, Carl G., 433
Gallaher, William F., 159
Ganz, Carol, 545
Garon, Claude F., 484
Gemski, P., Jr., 668
Gerard, Gary F., 1136
Ghendon, Y., 261
Gibson, Wade, 1044
Gilden, R. V., 746
Gillin, Frances D., 863
Ginsberg, Harold S., 328, 1109
Girard, Marc, 1143
Glaser, Ronald, 288
Grandgenett, Duane P., 1136
Green, D. MacDonald, 51
Green, Maurice, 447, 1126, 1136
Green, Melvin H., 32
Grimley, Philip M., 492, 504
Gussin, Gary N., 760

Hama, Seiji, 648
Hanafusa, H., 321
Hanafusa, T., 321
Haspel, Osnat, 439
Hattman, Stanley, 356
Havell, Edward A., 614
Hawley, Louise A., 1170
Heberlein, Gary T., 17
Hecht, Toby T., 578
Herberman, Ronald B., 1208
Herndon, R. M., 147
Hidalgo, Cecilia, 937
Hohn, B., 362
Hollinger, F. B., 469
Holloway, A. F., 1130
Horwitz, Marshall S., 211
Huebner, R. J., 746
Huismans, H., 783
Hull, R., 256
Humphries, Eric H., 82
Hutchison, Clyde A., III, 42

Ishida, Nakao, 157
Israel, Vance, 1152
Ito, Yoshei, 648
Iwasaki, Yuzo, 1220

Jackson, Arlene Hildebrandt, 1086
Jacobson, Ann, 835
Johnson, Patricia A., 1208
Johnson, R. T., 147

Käärjärnen, Leevi, 433
Kaji, Akira, 713
Kalica, Anthony R., 1075
Kang, H. S., 202
Kanich, Robert E., 766
Kapikian, Albert Z., 142, 1075

Kelley, J. Michael, 1231
Kelly, Marion E., 171
Kelly, Russel K., 824
Kennell, David, 872, 1199
Kerr, Ian M., 73
Kerr, I. M., 1184
Kettunen, Maija-Liisa, 433
Khoury, George, 1118
Kidwell, William R., 410
Kilbourne, E. D., 60, 639
Kiley, Michael P., 244
Kingsbury, D. W., 314, 1037
Klein, Paul A., 844
Knight, E., Jr., 93
Knight, Paul, 995
Knovicka, James, 150
Koczot, F., 1
Kclakofsky, Daniel, 555
Korant, B. D., 751
Kotler, Moshe, 439

LaFiandra, A. J., 698
Laine, Raili, 433
Lee, Lucy F., 167
Leppla, S. H., 965
Levin, Judith G., 492, 504
Levine, Myron, 1152
Lewandowski, Leon J., 965
Lewandowski, L. J., 1053
Lin, Fu Hai, 228
Lindberg, Uno, 909
Liu, Margaret, 1208
Loh, Philip C., 824
Lucas, Joseph J., 1109
Luftig, Ronald B., 545

McAllister, William T., 51
Macasaet, Francisco, 599
McAuslan, B. R., 202
McCorquodale, D. J., 179
McKerlie, Louese, 573
MacLeod, R., 1228
Maizel, Jacob V., Jr., 211, 880
Martin, Robert G., 410
Martinet, Claire, 889
Marvin, D. A., 362, 371, 384, 392
Mayol, Robert F., 99
Melamede, Robert J., 1159
Melnick, J. L., 469
Metz, D. H., 1184
Meuth, Nora L., 622
Michel, Marc F., 318
Middleton, Z. June H., 42
Mikhejeva, Angelika, 261
Milanesi, G., 187
Milani, Victor J., 17
Miller, Robert C., Jr., 920
Mortelmans, Kristien, 730
Moss, Bernard, 417, 866
Muller, R., 321, 721

Naot, Y., 858
Narayan, O., 147
Nash, Howard A., 937
Nayak, D. P., 933
Nichols, Chris, 1021
Nowinski, R. C., 951
Nowinski, Robert C., 959
Nugent, Kenneth, 1199
Nutter, Robert L., 560

Oroszlan, S., 746
Ou, Jonathan T., 869
Ozer, Harvey L., 410

Paoletti, Enzo, 417, 866
Parks, Wade P., 885
Parson, Kathleen A., 124
Pearson, Clark A., 560
Persson, Torgny, 909
Peterson, Victoria, 760
Pfefferkorn, Elmer R., 524, 537
Philipson, Lennart, 909
Picchi, Joanna C., 99
Plagemann, Peter G. W., 1082
Poglazov, B. F., 810
Ponce de Leon, Manuel, 1021
Pootjes, Christine, 816
Pope, Leodocia, 150
Prevec, L., 1228
Price, Alan R., 1240
Pridgen, C., 314
Printz-Ané, Christiane, 889

Rabinowitz, Zelig, 456
Ramos, Blanca A., 661
Rankin, Anne M., 1179
Rapp, Fred, 288, 995
Raskas, Heschel J., 1126
Rawls, William E., 661
Renkonen, Ossi, 433
Reynier, Max, 1143
Ricciuti, C. Probst, 162
Roberts, W. K., 969
Rodikova, L. P., 810
Roizman, B., 1071
Roizman, Bernard, 565, 875, 1044
Rose, James A., 1, 9, 1118
Rosen, Howard, 1152
Roy, K. L., 801
Roy, Polly, 234, 689
Rueckert, Roland, 347
Rueckert, Roland R., 1010
Rutberg, Lars, 658

Sachs, Leo, 456
Sakuma, S., 628, 943
Salzman, Lois Ann, 573
Salzman, Norman P., 462, 484
Samsonoff, William A., 516
Sanders, F. Kingsley, 477
Saral, Rein, 410
Sauer, Gerhard, 425
Schachtele, Charles F., 1170
Schlabach, A., 721
Schlesinger, Milton J., 925
Schlesinger, Sondra, 925
Scolnick, Edward M., 653, 885
Sebring, Edwin D., 462
Sekikawa, Kenji, 648
Shahrabadi, Mahmood S., 801
Shalitin, Channa, 310, 858
Shani, Moshe, 456
Shanmugam, G., 447
Shatkin, A. J., 698
Shaw, Elliott N., 880
Shimada, Koichiro, 648
Shirachi, Ryoichi, 157
Shiraishi, Hiroyuki, 157
Siapco, Benjamin S., 560
Simpson, Robert W., 689
Sinsheimer, Robert L., 99
Smale, C. J., 256
Smith, Gary L., 1091, 1098
Snustad, D. Peter, 124
Sokol, F., 985, 1228
Souther, Arthur, 88, 979
Spencer, J. H., 134
Speyer, J. F., 902
Spiegelman, S., 951, 959
Stafford, Marvin G., 675
Stanners, C. P., 605
Stephenson, John R., 653
Stewart, Margaret L., 880
Stewart, William E., II, 707, 896
Stoltzfus, C. Martin, 347
Stone, H. O., 1037
Stott, E. J., 142
Strniste, Gary F., 1031
Sturm, Macie M., 1208
Sugden, Bill, 1086
Suggs, Sidney, 88
Sugiura, A., 639
Sukeno, Noriyoshi, 157
Sultanova, R. A., 810
Summers, D. F., 1228
Summers, Donald F., 578, 683, 880
Suriano, J. R., 469
Swanstrom, Ronald I., 675
Swift, H., 1071
Szargel, Raymonde, 310

Tan, K. B., 985
Tattersall, Peter, 586
Taylor, William D., 1031
Tegtmeyer, Peter, 591, 599
Temin, Howard M., 82
Thacore, Harshad R., 171
Thoren, Marilyn M., 462
Thormar, Halldor, 228
Thornhill, Thomas S., 1075
Tobita, K., 639
Tovell, Dorothy R., 73
Tovell, D. R., 1184
Traynor, B. L., 1053
Tronick, Steven R., 885
Tseng, B. Y., 362, 371, 384, 392

van der Noordaa, J., 67
van der Vijver, Jan C. M., 318
van Es-Boon, Mary, 318
van Haagen, Anne, 67
van Someren, H., 67

Vecchio, Giancarlo, 447
Verma, Inder M., 622
Verwoerd, D. W., 783
Vilček, Jan, 614

Wagner, Edward K., 675
Wagner, Robert R., 244, 297, 1231
Wagner, R. R., 1228
Waite, Marilynn R. F., 524, 537
Walboomers, J. M. M., 67
Walker, Robert L., 1240
Wallace, Susan S., 1159
Warnaar, S. O., 193
Warner, Huber R., 124
Watanabe, Y., 628, 943
Watson, K. F., 951, 959
Weinberg, Eynat, 439
Weiner, L. P., 147
Weissbach, A., 321, 721
White, Wesley L., 573
Winocour, E., 193
Witonsky, Philip, 179
Wyatt, Richard G., 1075
Wyss, Orville, 150

Yakobson, E., 261
Yamamoto, T., 801
Yaniv, A., 951, 959
Yeh, Jen, 1220
Yelton, David B., 340
Yin, F. H., 93
Younghusband, H. Banfield, 855
Youngner, Julius S., 171

SUBJECT INDEX
VOLUME 10

Acute infections nonbacterial gastroenteritis
  visualization by immune electron microscopy, 1075
  visualization of a 27-nm particle, 1075
Adenovirus
  inclusions in canine cell line, 801
Adenovirus-associated virus
  DNA transcription, 1118
  helper function in acid synthesis, 1
  multiplication, 1, 9, 1118
Adenovirus infection
  SV40 enhancement mechanism, 211
  synthesis of viral RNA, 220
Adenovirus type 2
  characterization of mRNA in productive infection, 909
  infected AGMK cells, 1109
  isolation of mRNA in productive infection, 909
  messenger RNA, 1126
  preparation procedure for mRNA, 1126
  transformed rat embryo cells, 648
Adenovirus type 5
  selection and characterization of mutants, 328
  temperature-sensitive mutants, 328
Adenylate-rich sequences
  Sendai virus transcripts, 314
African green monkey kidney cells
  adenovirus type 2-infected, 1109
  transcription and transport of RNA, 1109
Agrobacterium tumefaciens
  host-phage R4 interaction, 816
  transfection, 17
Alkaline gradients
  separation of herpesvirus DNA duplex, 565
α-Amanitin
  inhibition of SV40-specific RNA synthesis, 1086
Antigen
  as glycoprotein of VSV, 1231
  guinea pig herpesvirus, 933
Antigenic fraction
  HSV-specific, isolation of, 1021
Antigenic relationship
  herpesviruses, 277
  infectious bovine rhinotracheitis, MDV, and Burkitt's lymphoma, 277
Antigenicity
  cytomegalovirus-infected cells, 766
Antigens
  avian leukosis virus, 81
Antiserum
  preparation of against avian myeloblastosis DNA polymerase, 951
Arbovirus
  membrane-associated replication, 504
Arenavirus
  Pichinde virus proteins, 661
Arginine deprivation
  reverse transcriptase, 439
  RSV-transformed rat cells, 439
Asymmetric replication
  fd duplex DNA, 371
Australia antigen
  conformational studies, 157
Avian leukosis virus
  antigens, 81
Avian myeloblastosis virus
  comparison of DNA polymerases, 959
  DNA distribution complementary to RNA in chickens, 1002
  DNA polymerase, 622
  covalent linkage, 622
  monospecific antiserum against DNA polymerase, 951
Avian oncornaviruses
  serological analysis of DNA polymerase, 951, 959
Avian tumor virus
  template activity, 23
Azotobacter bacteriophages
  morphology, 150
  nucleic acid composition, 150

B and T virions
  transcriptase and template activities in VSV, 297
Bacillus subtilis
  DNA inactivation process, 50
  DNA polymerase activity, 658
  DNA polymerase I-deficient mutant, 658
  dTTPase induced by phage SP82G mutants, 1240
  dUMP induced by phage SP82G mutants, 1240
  phage SP02-infected, 658
  phage SP82G inhibition, 50
  phage SPP1 infection, 187
  transcription after phage SPP1 infection, 187
Bacterial membranes
  association with replicative phage T4 DNA, 920
Bacteriophage
  Azotobacter, 150
  Bdellovibrio bacteriovirus, 516
Bacteriophage alpha
  dependence on host RNA polymerase, 1031
  development, 1031
Bacteriophage f1
  F pili, 835
Bacteriophage lambda
  isolation of *rex*⁻ mutants, 760
  micrococcal nuclease treatment, 863
  properties of *rex*⁻ mutants, 760
  rex⁻ mutants, 760
Bacteriophage lambda deoxyribonucleic acid
  alteration, 863
  methylated bases, 356
  methylation pattern, 937
  plasmid-controlled content in methylated bases, 356
Bacteriophage MS2
  infected *E. coli*, 162
Bacteriophage Mu-1
  asymmetric transcription, 1205
Bacteriophage P3
  change in methylation of DNA, 560
  passage through *E. coli*, 560

Bacteriophage P22
binding of tail parts to *S. typhimurium*, 1152
Bacteriophage R4
A. tumefaciens infection, 816
changes in infected host cell, 816
Bacteriophage S13 *su*N15
replicative-form DNA, 134
single-strand DNA, 134
Bacteriophage SP02
B. subtilis, 658
Bacteriophage SP82G mutants
dTTPase induced in *B. subtilis*, 1240
dUMP induced in *B. subtilis*, 1240
inhibition in *B. subtilis*, 50
Bacteriophage SPP1
infection in *B. subtilis*, 187
Bacteriophage T2
exclusion by ghosts, 872
ghost-treated *E. coli*, 1199
Bacteriophage T4
association of replicative DNA and bacterial membranes, 920
base plates, 810
characterization of base plates, 810
concatemer formation in infected cells, 858
defective head structures, 545
E. coli, 713
gene 16-, 17-, and 49-defective heads, 545
ghost infection in *E. coli*, 713
head morphogenesis, 545
host-mediated repair of radiation damage, 1159
isolation in *E. coli*, 810
isolation of base plates, 810
phage-mediated repair of radiation damage, 1159
protein synthesis in *E. coli*, 713
*r*II-D deletion mutants, 87
role of gene D2a in *E. coli* chromosomal degradation, 979
roles of χ and ν genes, 730
Bacteriophage T4 deoxyribonucleic acid
attached ribonucleotides, 902
delay mutants, 858
repair, 730
Bacteriophage T4*r*II
defective DNA replication, 310
Bacteriophage T4 mutant
infection of *E. coli*, 124
Bacteriophage T5
effect of rifampin on growth, 179
Bacteriophage T7
DNA, 114
DNA replicative intermediates, 114
Bacteriophage ϕ29
production of host-specific RNA, 1170
production of ϕ29-specific RNA, 1170
transcription during development, 1170
Bacteriophage ϕX174
size of cistrons, 98
translation of cistrons, 98
Base plates
phage T4, 810
Bdellovibrio bacteriovirus
characterization of phages, 516
isolation of phages, 516
Binding
phage P22 to *S. typhimurium*, 1152
Bluetongue virus
capsid structure, 783
Bluetongue virus capsid
polypeptide components, 783
Brain
human, 147
Bryan Rous sarcoma virus
transformation of infected cells, 267
Burkitt lymphoblastoid cells
rescue of Epstein-Barr virus, 288
Burkitt's lymphoma
antigenic relationship with infectious bovine rhinotracheitis and MDV, 277

Canine adenovirus
macromolecular content of inclusions, 801
role of inclusions in virus multiplication, 801
Canine distemper virus
cell fusion by infected cells, 1179
Capsid polypeptides
mouse Elberfeld virus, 347
Cell fusion
produced by canine distemper virus-infected cells, 1179
Cell-bound interferon
recovery, 707
Cell-free synthesis
of viral polypeptides, 72
Cellular alteration
interferon, 896
Chicken cells
RSV-infected, 81
Chicken embryo cells
DNA polymerase activities, 321
Chicken embryo lethal orphan virus
DNA denaturation pattern, 855
Chicken tissues
oncornavirus DNA, 1002
Circular dichroism
studies of Australia antigen, 157
Classification
rhabdovirus proteins, 1228
VSV proteins, 1228
Cleavage
viral precursor proteins, 751
Coliphage lambda
behavior in *S. flexneri* 2a, 668
Concanavalin A
Ehrlich ascites tumor cell surfaces, 844
influenza virus, 844
Concatemer formation
phage T4 DNA-delay mutants, 858
Cytomegalovirus
infected cells, 766
nonviral microbodies, 766
viral antigenicity in infected cells, 766
Cytopathic vacuole membranes
Semliki Forest virus replication, 504
Cytoplasmic polyhedrosis virus
comparison of dsRNA 3′ terminal nucleosides, 965
structure and polypeptide composition, 1053
Cytosine
contained in DNA, 87

Denaturation pattern
chicken embryo lethal orphan virus DNA, 855
Density heterogeneity
SV40 RNA, 1236
Deoxyribonuclease
frog virus 3, 202
Deoxyribonucleic acid
association of replicative phage T4 and bacterial membranes, 920
chicken embryo lethal orphan virus, 855
cytosine-containing, 87
degradation of infecting fd single-stranded molecules, 362
distribution of complementary to RNA of AMV, 1002
effect of Zn^{2+} on adsorption, 869
fate of infecting parental, 362
fd duplex: asymmetric replication, 371
HSV, arrangement in core, 1071
methylation pattern in phage λ, 937
nucleotide phosphohydrolase activity, 866
phage S13 *su*N15, 134
phage T7, 114
polyoma virus, 776
production by restriction enzyme, 41
ribonucleotide-linked in phage T4, 902
stability after phage infection, 87
sequences in revertants, 456
SV40 in nonpermissive cells, 425
SV40-transformed cells, 399
synthesis helper requirement, 1
uptake in *Agrobacterium tumefaciens*, 17
vaccinia virus, 866
φX174 from *Haemophilus aegyptius*, 41
Deoxyribonucleic acid fragments
produced by endonuclease Z, 41
Deoxyribonucleic acid inactivation
in *B. subtilis*, 50
phage SP82G inhibition, 50
Deoxyribonucleic acid methylation
plasmid-controlled, 356
Deoxyribonucleic acid polymerase
activity in *B. subtilis* mutant, 658
activities in chicken embryo cells, 321
avian myeloblastosis virus, 622
Maedi virus virions, 228
Rauscher leukemia virus, 885
reversible inactivation in RSV, 885
serological analysis of in avian oncornaviruses, 951, 959
RNA- and DNA-dependent in Maedi virus virions, 228
vaccinia virus, 721
Deoxyribonucleic acid repair
host factors in phage T4, 730
χ and *v* genes in phage T4, 730
Deoxyribonucleic acid replication
initiation site for SV40, 462
phage T4*r*II in λ-lysogenic host cells, 310
role of fd gene 2, 384
SV40, 484
Deoxyribonucleic acid sequences
polyoma-transformed cells, 456
Deoxyribonucleic acid synthesis
fd; antibiotics effect, 392
fd; inhibition, 392
MDV-induced, 167
SV40, 599
SV40 replicon, 591
temperature inhibition, 392
VSV mutant, 605
Deoxyribonucleic acid transcription
adenovirus-associated virus, 1118
Deoxyribonucleic acid virus
sensitivity to interferon, 171
Deoxyuridylate hydroxymethylase
induced by *B. subtilis* phage SP82G mutants, 1240
Diethylaminoethyl-dextran
effect on interferon synthesis, 614
Diplornavirus
comparison of CPV, WTV, and reovirus, 1053
polypeptide composition of CPV, WTV, and reovirus, 1053
structure of CPV, WTV, and reovirus, 1053
Double-stranded ribonucleic acid
comparison of 3′termini of genomes of CPV, WTV, and reovirus, 965
intermediate synthesis structures, 628
reovirus incorporation into virus corelike particles, 943

Ehrlich ascites tumor cells
ferritin-labeled concanavalin A, 844
Electron microscopy
immune, 142
Sindbis virus release, 537
Encephalomyocarditis virus
inhibition of mRNA translation, 1184
polypeptide formation, 72
RNA, 72
Endonuclease
SV40 virion-associated, 410
Endonuclease II
phage T4 mutant, 124
Endonuclease Z
from *Haemophilus aegyptius*, 41
Enhancement mechanism
human adenovirus infection, 211
Envelope protein
identification of precursor in Sindbis virus, 925
Epstein-Barr virus
rescue from somatic cell hybrids, 288
chromosomal degradation after phage T4 infection, 979
host-virus interactions, 162
isolation of phage T4, 810
modification of phage P3, 560
nuclear disruption after phage infection, 124
phage f1 infection, 835
phage MS2-infected, 162
phage T2 ghost-treated, 1199
phage T4 ghost infection, 713
protein synthesis, 713
role of phage T4 gene D2a in chromosomal degradation, 979

Fatty chains
host cell membranes, 433
Semliki Forest virus, 433
fd gene 2
DNA replication, 384
Filamentous bacterial viruses
asymmetrical replication of fd duplex DNA, 371
fate of single-stranded DNA, 362
fd gene 2 in DNA replication, 384
inhibition of fd DNA synthesis, 392
F pili
penetration of phage f1, 835
Frog virus 3
associated nucleases, 202
Freeze-etching techniques
Sindbis virus, 524

Gel electrophoresis
SV40 DNA synthesis, 599
Genetic map
phage ϕX174 cistrons, 98
Ghosts
phage T2, 872
Glycoprotein
VSV, 1231
Gross leukemia virus
classification of soluble antigens, 1208
Gross soluble antigens
leukemia virus, 1208
Group A arboviruses
membranous structures, 492
replication, 492
Guinea pig herpesvirus
activation of antigen in leukemic lymphoblasts, 933

Haemophilus aegyptius
endonuclease Z, 41
ϕX174 DNA from, 41
Hamster cells
latency of human measles virus, 995
Hamster sarcoma virus
theta particles, 477
Heating
effect on RNA of RSV, 23
HeLa cells
cleavage inhibition of proteins, 880
DNA polymerase, 721
poliovirus-specific precursor proteins, 880
Hepatitis B antigen
biophysical and biochemical heterogeneity, 469
Herpes simplex virus
capsid forms of protein subtypes 1 and 2, 1044
DNA arrangement in core, 1071
genome transcription, 675
polyadenylic acid sequences in RNA, 875
RNA synthesis in infected cells, 875
specified proteins, 1044
structural proteins, 1044
virus-specific antigenic fraction, 1021
Herpes simplex virus genome
transcription in human cells, 675
Herpesvirus
replication helper activity, 9
Herpesvirus deoxyribonucleic acid
sedimentation in alkaline gradients, 565
separation on sedimentation, 565
Herpesviruses
antigenic relationship, 277
Heterogeneity
purified hepatitis B antigen, 469
Host-virus interactions
E. coli, 162
Hybrid
between mouse and rat cells, 66
Human adenovirus infection
enhancement mechanism, 211
monkey cells, 211
Human brain
simian virus 40-like virus, 147
Human cells
HSV genome transcription, 675
Human measles virus
latency in hamster cells, 995

Immune electron microscopy
acute infectious nonbacterial gastroenteritis, 1075
rhinovirus, 142
visualization of a 27-nm particle, 1075
Inclusions
canine adenovirus, 801
Infectious bovine rhinotracheitis
antigenic relationship with MDV and Burkitt's lymphoma, 277
Infectious deoxyribonucleic acid
demonstration in SV40-transformed cells, 399
Infectious pancreatic necrosis virus
biochemical characterization, 824
electron microscopical characterization, 824
RNA properties, 824
Infectious subviral particles
reovirus transcription, 698
Influenza
transcription of RNA genome, 689
Influenza ribonucleic acid
completeness of transcription process, 689
transcription by a virion polymerase, 689
Influenza virus
characterization of mutants, 639
ferritin-labeled concanavalin A, 844
isolation of mutants, 639
neuraminidase of, 59
nucleoprotein strand, 795
recombinant X-7, 59
ribonucleoprotein structure, 795
temperature-sensitive mutants, 639
Inhibition
Newcastle disease virus, 159
Interferon
cell-bound, 707
cellular alteration, 896
inhibition of EMC virus mRNA translation, 1184
recovery, 707
RNA and DNA viruses, 171
virus-free assay, 896
Interferon assay
poly(I)·poly(C), 896

Interferon synthesis
effect of diethylaminoethyl-dextran, 614
induction by poly(I)·poly(C) acid, 614
induction effect, 614
Intracellular nucleocapsids
RNA species of VSV, 244
Intracytoplasmic membranous structures
group A arboviruses, 492
In vitro RNA synthesis
rhinovirus, 92
In vivo RNA synthesis
rhinovirus, 92

Kilham rat virus
cellular macromolecular synthesis, 573
growth characteristics, 573

L cells
histocompatibility antigen, 578
interferon mechanism in EMC virus mRNA translation, 1184
Mengo virus-induced cell injury, 969
use of protein synthesis inhibitors in cell-injury mechanism, 969
VSV infection, 578
Lactic dehydrogenase-elevating virus
physical properties, 1082
RNA, 1082
Lambda-lysogenic host cells
defective DNA replication of phage T4rII, 310
Latency
human measles virus in hamster cells, 995
Leukemia virus
classification of soluble antigens, 1208
Leukemic lymphoblasts
site of activation of guinea pig herpesvirus antigen, 933
Leukoencephalopathy
SV40-like virus, 147
Leukovirus
infected chicken embryo cells, 321
Lipids
host cell membranes, 433
Semliki Forest virus, 433
Lysogenic conversion
S. aureus, 318
Lysogeny
characterization of *N. erythropolis*, 737
isolation in *N. erythropolis*, 737

Macromolecular synthesis
Kilham rat virus, 573
Maedi virus
nucleic acid properties, 228
RNA- and DNA-dependent DNA polymerase, 228
Mammalian cells
RSV-transformed, 153
Marek's disease virus
antigenic relationship with infectious bovine rhinotracheitis and Burkitt's lymphoma, 277
DNA synthesis, 167
oncogenicity, 167
Mengo virus
induced cell injury in L cells, 969
use of protein synthesis inhibitors in cell injury mechanism, 969
Messenger ribonucleic acid
adenylate-rich sequences in VSV, 683
characterization of in adenovirus-infected cells, 909
isolation of in adenovirus-infected cells, 909
preparation procedure for Ad-2, 1126
Methylated bases
variation in phage λ DNA, 356
Methylation pattern
phage λ DNA, 937
Micrococcal nuclease treatment
phage λ DNA alteration, 863
phage heads, 863
MiO cells
poliovirus morphogenesis, 261
Model
VSV, 256
Morphology
Azotobacter phages, 150
Mouse ascites tumor cells
polypeptides formed in, 72
Mouse cells
hybrid with rat cells, 66
Mouse Elberfeld virus
amino acid composition, 347
capsid polypeptides, 347
molar ratios in virion, 347
Mouse embryo cells
polyoma pseudovirion production, 340
Murine sarcoma-leukemia virus
viral polypeptide synthesis, 447
Murine sarcoma virus
isolation of *ts* mutants, 653
major group-specific protein, 746

Neuraminidase
A_2(N2) of influenza virus, 59
composition, 59
minimal functioning unit in influenza virus, 59
molecular size, 59
X-7 influenza virus, 59
Neutralizing antibody
production stimulated by HSV-specific antigenic fraction, 1021
Newcastle disease virus
fusion from without, 159
Nocardia erythropolis
lysogenic strain, 737
Nonidet P-40
disruption of RSV, 1010
Nonpermissive 3T3 cells
SV40-DNA infected, 425
Nonviral microbodies
cytomegalovirus-infected cells, 766
Nuclear disruption
infection of *E. coli*, 124
Nucleases
virus-associated in purified frog virus 3, 202
Nucleic acid composition
Azotobacter phages, 150
Nucleocapsids
SSPE virus, 1220

Oncornavirus deoxyribonucleic acid
chicken tissues, 1002
Optical rotatory dispersion
studies of Australia antigen, 157

Parainfluenza I
polyoma virus synthesis inhibition, 1091
polyoma virus synthesis interference mechanism, 1098
Parvovirus MVM
plaque formation, 586
replication, 586
virus multiplication dependence, 586
Peptide synthesis
phage T2 ghost-treated *E. coli* extracts, 1199
Phosphate acceptor proteins
vaccinia virus core-associated, 417
Phosphoproteins
SV40, 985
Pichinde virus
structural proteins, 661
Plaque formation
MVM, 586
Poliovirus morphogenesis
MiO cells, 261
study of stages, 261
Poliovirus-specific precursor proteins
cleavage inhibition by chymotrypsin inhibitors, 880
Poliovirus type I
Sabin strain, 1143
thermosensitivity, 1143
Polyadenylic acid sequences
HSV RNA, 875
Polyinosinic-polycytidylic acid
induction of interferon synthesis, 614
Polyoma nucleoprotein complex
biosynthetic properties, 31
replication sites, 31
Polyoma pseudovirions
production in primary mouse embryo cells, 340
Polyoma-transformed cells
DNA sequences in revertants, 456
Polyoma virus
protein binding to DNA, 776
structural roles of proteins, 776
Polyoma virus inhibition
inactivated virus interference mechanism, 1098
Polyoma virus synthesis
inactivated virus inhibition, 1091
nature of parainfluenza I inhibition, 1091
parainfluenza I interference mechanism, 1098
Sendai virus inhibition, 1091, 1098
Polypeptides
bluetongue virus capsid, 783
formation in cell-free system, 72
mouse ascites tumor cells, 72
presence in Sendai virus-induced transcriptase, 1037
Polyriboinosinic·polyribocytidylic acid
interferon assay, 896
Preparation procedure
Ad-2 mRNA, 1126
Primary mouse embryo cells
sequence of events in pseudovirus production, 340
Protein
major group-specific of rat type C virus, 746
Protein kinase
vaccinia virus core-associated, 417
Protein-synthesis inhibitors
inhibition of fd DNA synthesis, 392
Proteolytic activities
cleavage in vivo and in vitro, 751
Proteolytic enzyme inhibitors
cleavage inhibition in HeLa cells, 880
Pseudorabies virus
sensitivity to interferon, 171

Radiation damage
repair in phage T4, 1159
Rat cells
SV40-transformed, 66
Rat embryo cells
adenovirus type 2-transformed, 648
nucleus and cytoplasm, 648
virus-specific RNA, 648
Rat type C virus
major group-specific protein, 746
Rauscher leukemia virus
reversible inactivation of DNA polymerase, 885
Released virions
RNA species of VSV, 244
Reovirus
comparison of dsRNA 3′ terminal nucleosides, 965
dsRNA incorporation into reovirus corelike particles, 943
infectious subviral particles, 698
structure and polypeptide composition, 1053
transcription, 698
Reovirus replicase
double-stranded RNA synthesis, 628
Replication sites
polyoma nucleoprotein complex, 31
Replicative intermediates
phage T7 DNA, 114
Restriction enzyme
endonuclease 7, 41
Haemophilus aegyptius, 41
Reverse transcriptase
induced by arginine deprivation, 439
RSV-transformed rat cells, 439
rex⁻ mutants
phage λ, 760
Rhabdovirus proteins
classification, 1228
Rhinovirus
immune electron microscopy, 142
RNA synthesis, 92
Ribonuclease
frog virus 3, 202
Ribonuclease H
nononcogenic viruses, 1136
relation to DNA polymerase in murine sarcoma-leukemia virus, 1136
RNA tumor viruses, 1136
Ribonucleic acid
AMV, 1002
avian tumor virus, 23
density heterogeneity of SV40, 1236

encephalomyocarditis virus, 72
infectious pancreatic necrosis virus, 824
inhibition of EMC virus translation in L-cell extracts, 1184
lactic dehydrogenase-elevating virus, 1082
polypeptides formed in response to, 72
production during phage ϕ29 development, 1170
RSV-infected cells, 81
SV40, 193
synthesis helper requirement, 1
transcription in Ad2-infected AGMK cells, 1109
transport in Ad2-infected AGMK cells, 1109
Ribonucleic acid genome
influenza, 689
Ribonucleic acid polymerase
phage α dependence during development, 1031
Ribonucleic acid species
VSV nucleocapsids and virions, 244
Ribonucleic acid synthesis
inhibition by α-amanitin, 1086
HSV-infected cells, 875
human rhinovirus type 2, 92
reovirus replicase-directed, 628
restricted adenovirus infection, 220
unenhanced adenovirus infection, 220
Ribonucleic acid tumor virus
ribonuclease H, 1136
Ribonucleic acid virus
sensitivity to interferon, 171
Ribonucleoprotein
influenza protein, 795
Ribonucleotides
DNA linked in phage T4, 902
Rifampin
effect on phage T5 growth, 179
Rous sarcoma virus
activation of infected cells, 81
mutant of Bryan strain, 267
NP-40-treated, 1010
products from NP-40 disruption, 1010
rescue from mammalian cells, 153
ribonucleoprotein particle, 1010
temperature-dependent transformation of infected cells, 267
template activity, 23
transformed mammalian cells, 153
transformed rat cells, 439
60 to 70S RNA, 23

Sabin strain
poliovirus type I, 1143
Salmonella typhimurium
binding of phage P22 to host cell, 1152
Semliki Forest virus
fatty chains of lipid classes, 433
membrane-associated replication, 504
Sendai virions
transfer RNA nucleotidyltransferase, 555
Sendai virus
induction of transcriptase from infected cells, 1037
polyoma virus synthesis inhibition, 1091
polyoma virus synthesis interference mechanism, 1098
polypeptides in virus-induced transcriptive complex, 1037
Sendai virus transcripts
adenylate-rich sequences, 314
Serological analysis
DNA polymerase of avian oncornaviruses, 951, 959
Shigella flexneri 2a
coliphage λ behavior, 668
Simian virus 40
analysis by gel electrophoresis, 599
density heterogeneity of RNA, 1236
DNA replication: origin and direction, 484
DNA replication site, 462
DNA synthesis, 591, 599
enhancement mechanism in human adenovirus infection, 211
hybrid with mouse cells, 66
infecting DNA in nonpermissive cells, 425
phosphoproteins, 985
recovery from transformed cells, 399
RNA, 193
RNA synthesis inhibition by α-amanitin, 1086
structural proteins, 985
transformed rat cells, 66
viral replicon, 591
Simian virus 40 deoxyribonucleic acid
integration into host DNA, 425
Simian virus 40-like virus
human brain, 147
Simian virus 40 ribonucleic acid
density heterogeneity, 1236
Simian virus 40 virions
endonuclease characterization, 410
Sindbis virus
freeze-etching techniques, 524
inhibition of release, 537
morphogenesis, 524
morphology, 524
Sindbis virus proteins
formation, 925
identification of precursor for envelope protein, 925
Sindbis virus release
electron microscopy, 537
inhibition by low-ionic-strength media, 537
Somatic cell hybrids
properties, 66
rescue of Epstein-Barr virus, 288
Structural proteins
herpes simplex virus, 1044
Pichinde virus, 661
Staphylococcus aureus
lysogenic conversion to leucocidin production, 318
Subacute sclerosing panencephalitis virus
characterization of nucleocapsids, 1220
isolation of nucleocapsids, 1220

T4 *r*II-D
phage deletion mutants, 87
T7 deoxyribonucleic acid
replicative intermediates, 114
Temperature-dependent transformation
RSV-infected cells, 267
Temperature-sensitive mutants
influenza virus, 639

murine sarcoma virus, 653
type 5 adenovirus, 328
VSV, 889, 1130
3′ terminal nucleosides
comparison between CPV, WTV, and reovirus, 965
Thermosensitivity
poliovirus type I, 1143
Theta particles
hamster sarcoma virus, 477
Thymidine triphosphate nucleotidohydrolase
induced by *B. subtilis* phage SP82G mutants, 1240
Transcriptase
Sendai virus-induced from infected cells, 1037
Transcriptase and template activities
VSV B and T virions, 297
Transcription
adenovirus-associated virus, 9
asymmetric, of phage Mu-1, 1205
B. subtilis, 187
Transfection
Agrobacterium tumefaciens, 17
Transfer ribonucleic acid
nucleotidyltransferase, 555
Sendai virions, 555

Vaccinia virus
DNA polymerase, 721
HeLa cells, 721
nucleotide phosphohydrolase activity, 866
sensitivity to interferon, 171
Vaccinia virus cores
protein kinase, 417
specific phosphate acceptor proteins, 417
Vesicular stomatitis virus
adenylate-rich sequences, 683
B and T virions, 297
classification of proteins, 1228
dissociation, 234
effect on L cells, 578
glycoprotein as antigen to neutralizing antibody, 1231
histocompatibility antigen of L cells, 578
messenger RNA, 683
model, 256
noncytocidal mutant, 605
relation of virion proteins to the viral transcriptase, 234
replication study, 889
RNA species of nucleocapsids and virions, 244
temperature-sensitive mutants, 889, 1130
transcriptase and template activities, 297
transcription study, 889
virion-associated polymerase, 1130
Vesicular stomatitis virus mutant
division in cells synthesizing RNA, 605
DNA synthesis, 605
in vitro polymerase activity, 1130
Viral polypeptide synthesis
immunological studies, 447
murine sarcoma-leukemia virus, 447
Viral precursor proteins
cleavage, 751
Virion polymerase
influenza RNA genome, 689
Virion proteins
vesicular stomatitis virus, 234
Virus multiplication
adenovirus-associated, 1, 9

Wound tumor virus
comparison of dsRNA 3′ terminal nucleosides, 965
structure and polypeptide composition, 1053

Zinc ion
effect on DNA adsorption, 869
effect on isometric RNA phages, 869

INDEX TO DATE OF ISSUE

Month	Date of Issue	Pages
July	21 July 1972	1–166
August	24 July 1972	167–320
September	28 September 1972	321–564
October	30 October 1972	565–888
November	28 November 1972	889–1090
December	21 December 1972	1091–1242